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DIESEL RAILWAY TRACTION

The November issue of this RAILWAY GAZETTE *publication, illustrating and describing developments in Diesel Railway Traction is now ready, price* 2*s.*

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THE RAILWAY GAZETTE
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Unions Disagree Over Wage Claims

LACK of unity continues among the railway trade unions in the matter of wage claims. As a result of the rejection of its demand for a general wage increase of 10s. a week, the N.U.R. recently decided to submit to the Railway Executive a new claim on behalf of those of its members in receipt of less than £5 a week. Before proceeding with its demand, however, other railway unions have been invited by the N.U.R. to discuss this new claim, and last week it was announced that, subject to certain conditions, the R.C.A., though this union did not support the former claim for a 10s. a week increase, had agreed to take part. It is understood that the R.C.A. has stipulated that the form of the claim must not infringe existing arrangements with regard to the differential rates for supervisory grades. On the other hand, the A.S.L.E. & F. has decided not to participate in the proposed talks. This decision does not occasion surprise in view of the fact that the A.S.L.E. & F. has declared that its first efforts are to be directed to securing a pensions scheme for its members, and it is felt that any further wage demand at the present time might prejudice this claim.

* * * *

Institute of Transport's 30th Anniversary

On Tuesday last a luncheon was held at the Connaught Rooms, London, W.C.2, to mark the 30th anniversary of the formation of the Institute of Transport, which occurred on November 3, 1919. Brig.-General Sir H. Osborne Mance, the President, was in the chair, and the principal speakers were Marshal of the Royal Air Force, Lord Tedder, and the Minister of Transport, Mr. Alfred Barnes. The President referred to the fact that the Institute now had well over 8,000 members, and he made a special plea that members of the staffs of the nationalised transport industries should be permitted freedom of expression by the various Executives in the discussion of transport matters at Institute proceedings. Mr. Barnes cordially supported this view, and said that it was of the utmost importance that those engaged in the transport undertaking should be able to give their colleagues the benefit of their views. It was essential that transport should reflect all the changes which took place in a national life. Lord Tedder pointed out that transport was a common denominator in the life of a country, and that, since it was as vital to the well-being of a nation as arteries were to a body, there was a constant need to keep it in good health, and to ensure that transport in this country did not lag behind that in others.

* * * *

National Economy in Transport

During the debate in the House of Commons on the crisis which has arisen in the country's balance of payments, and the economies which are to be effected in capital and other expenditure, it was made clear that some contribution would be required from transport. On behalf of the Government it was admitted that capital investment in transport was already so restricted that the scope for further curtailment was limited. In the case of railways, any economy necessarily must mean a reduction in the standard of maintenance, which is already below what it should be because of the impossibility of catching up on the deferments which were the result of the war, and difficulties in the supply of labour and materials. Some much-needed new development works are also likely to be restricted. The probable effect of the Government's policy is that none but the most essential new works will be undertaken, and that schemes already in progress will be completed up to a point at which deferment of the remainder can take place. In all, including contributions from civil aviation and the Post Office, it has been suggested that over the whole field of transport and communications there should be a saving of at least £10,000,000.

* * * *

Irish Transport Bill

Elsewhere in this issue is given an abridged report of the proceedings in the Dublin Parliament last week when the Bill to nationalise transport in Eire was discussed. The Minister for Industry & Commerce dealt with a number of points made in the Milne Report and said he understood that the Irish Transport Company was in negotiation with the

suppliers of six large diesel-electric locomotives for their sale, when completed, to some other transport undertaking. He was hopeful of a satisfactory outcome to negotiations between the Chairman of the Irish Transport Company and the Ulster Transport Authority as to the future of the Great Northern Railway (Ireland), but further legislation might be required to implement any scheme that might be agreed. He also dealt at some length with the wide powers which the Bill accords the new Irish Transport Company to fix its own rates and charges without the necessity for reference to the Dail, and also to decide on the closure or re-opening of railway branch lines.

* * * *

"Soulless Atmosphere" on British Railways

One of the principal contributed articles in *The Railway Review*, the organ of the National Union of Railwaymen, goes into a good deal of detail in support of its claim that "never was there a time when discontent was so rampant as it is today on British Railways." It contends that only with the utmost difficulty can staff be retained, and that lack of interest in the job, bad time-keeping and absenteeism were never so rife. For all this it holds responsible "the gradual development of a soulless, de-humanising and individuality-killing atmosphere that prevails all over the railway system in these days." Later, the writer of the article goes on to say that every week men are leaving the railways in large numbers, "because of the soul-destroying system of remote control . . . In the old days the control of the railways was a simplified system. The individual on the spot gave the order to do a job and was there to see that it was done."

* * * *

An Exaggerated Picture

The Railway Review article spoils the picture it attempts to draw by over-exaggeration and by intemperance of language. Undoubtedly all is not well in the railway rank and file—and for that matter in grades a good deal higher—but is it reasonable to lay the cause for all the indiscipline, discontent, frustration, slovenly work, and poor morale at the door of "remote control?" Have the unions no responsibility for seeing that their members behave decently and with a reasonable regard for their obligations? Is not remoteness of control a natural result, foreseen by many outside the unions, of bringing under a single State ownership four already very large railway systems? We have commented previously on the fact that trade unionists, who were loudest in claiming for State ownership all manner of merits from the viewpoint of the men and the nation, have been the most disgruntled at its operation in practice. It is probably true that a great majority of railway officers was opposed in principle to nationalisation. It is equally true that, the step having been taken, these officers are doing their best to make the new system work.

* * * *

Double-Deck Four-Coach Units

The first British Railways double-deck train went into service on the Charing Cross-Dartford section of the Southern Region on November 2. The new stock was designed with a view to relieving the congestion which occurs at peak-traffic hours. A "mock-up" facsimile was exhibited at Marylebone Station last March and was illustrated in our issue of March 4. There are to be eight coaches, with a total seating capacity of 1,104, as compared with 772 in the normal eight-coach train. The total tare weight of the stock is similar to that of the ordinary stock, the tare weight per passenger, however, is ·264 tons, against ·374 tons. In the trailer coaches there are six double compartments with eleven seats below and eleven above, in addition to one lower-deck compartment containing twelve seats in the middle of the coach. There are also twelve tip-up seats on the upper deck, giving a total seating capacity of 156 per coach. Each of the four motor coaches can seat 120 passengers. The lines between London and Dartford serve a densely populated area and for many years it has been impossible to provide seating accommodation for all passengers during rush hours. British Railways consider that such an innovation should be tested before being put into full-scale production and it is expected that the re-action of the public in using the upper seats will be a valuable guide. The problem may now become station stopping-time. Further details of the train are given elsewhere in this issue.

* * * *

Road Haulage Executive Traffics

Suggestions that the Road Haulage Executive is losing money were refuted by Major-General G. N. Russell, Chairman of the Executive, last week. He added that of the total amount of traffic offering, he thought that the Road Haulage Executive was getting a proper share, but its vehicles had space to spare, and could take more traffic. He agreed that a certain amount of traffic had been withdrawn from the hauliers on their acquisition by the Executive. It was fairly clear that that traffic had not gone on to the railways, for the railway goods receipts were showing heavy falls. The number of "C" licensed vehicles, on the other hand, showed substantial increases, and it was reasonable to assume, therefore, than much of the traffic was being carried by traders in their own vehicles. On the steps being taken to effect integration of rail and road services, he said that the matter was under constant discussion, and that the Executive was proceeding in close consultation with the trade unions. Several experiments were being examined, but these would not be made fully effective until agreement had been reached with the unions on the steps which should be taken.

* * * *

Rail-Road Co-ordination in Ulster

Evidence of considerable progress in the co-ordination of rail and road passenger services in Northern Ireland is given in the winter timetables recently issued by the Ulster Transport Authority. In a large combined timetable, which came into operation on October 24, a section of more than 20 pages is given to co-ordinated services with railhead connections carefully adjusted to link with bus routes. Many services formerly duplicated by train and bus have been pruned, but this has not been done at the expense of the provision of adequate and efficient facilities. Numerous improvements have been carried out to meet changes in travel conditions, and in accordance with requests by the travelling public. The Authority has made it known that suggestions from the public are welcome and where feasible are put into practice. The Authority's monthly mileage is now 2,758,588 by road, and 182,516 by rail. The daily road services are responsible for an area of 2,460 miles, and the lines of the Northern Counties Committee and Belfast & County Down Sections have a total track mileage of 326. There are 7,500 bus stops, 2,500 fare stage points, and 122 railway stations.

* * * *

Twenty-Five Mile Limit for Road Transport

The Minister of Transport has made an order fixing February 1, 1950, as the Appointed Day after which it will be illegal for goods to be carried by road hauliers for hire or reward more than 25 miles from the operating centre of the vehicle. After that date road hauliers will require permits, which are to be issued by the Road Haulage Executive in accordance with Permit Regulations, to carry goods outside the 25-mile limit. Certain goods, known as "excluded traffics," are exempt from these provisions under the Transport Act, 1947. In cases where a notice of acquisition has been served on the undertaking operating the vehicles and has not been withdrawn, carriage may continue outside the limit. Operators who have made a valid application to the Road Haulage Executive for an original permit are entitled to operate until one month after the Executive's decision has been notified to the applicant, or March 1, 1950, whichever is the later.

* * * *

"Malaga" Remodelled

In renovating the car *Malaga*, as described elsewhere in this issue, the Pullman Car Company has succeeded in preserving the characteristics of "Pullmanism" which have stamped its cars since their introduction, and, at the same time, produced an interior which conforms to the latest trends in coach design. The use of anodised aluminium is a noteworthy feature, and the experiment of placing a waxed walnut veneer on aluminium sheet is one which will be watched with interest. *Malaga* was one of a batch of Pullmans which came out in 1921 for the Continental services of

the S.E.C.R., and were finished in the old crimson lake livery. They struck a more up-to-date note than the pre-1914 S.E.C.R. Pullmans, with their Edwardian ornateness and "palatial appointments," which they supplemented. The assorted names included *Monaco*, *Milan*, and *Palermo*, suggestive of Mediterranean sunshine. All of the series are still in service on boat trains, but *Malaga* is the first to be renewed. The result is no sacrifice of, but rather a gain in, comfort and dignity, exemplifying the progressive post-war policy of the Pullman Car Company, which has produced the "Devon Belle" observation car and the New Century Bar of the "Golden Arrow," with their ingenious adaptation of existing material. The car will certainly earn the approval of its fastidious clientele when it re-enters the "Golden Arrow" service this month, and we trust that its success will be such as to justify similar treatment of the sister cars when they become due for renewal.

* * * *

Main-Line Electric Locomotives for Brazil

In our October 28 issue we referred to the inspection of the first of fifteen 3,000-h.p. 3,000-volt d.c. main-line electric locomotives which had been completed at the works of the Vulcan Foundry Limited. These new locomotives, details of which are given elsewhere in this issue, are designed for multiple-unit operation to permit of dealing with heavier trains which are expected as a result of the electrification of the E.F.S.J. Owing to the general conditions prevailing on the railway, which involves short hauls, and considering the complexity of handling very large trains in the shunting yards, the size of freight trains will be limited to 600 tons. A single locomotive is capable of hauling a load of this weight on the level at the maximum permissible speed of 45 m.p.h., and on a gradient of 2·5 per cent. at approximately 20 m.p.h. Passenger trains varying from 300 tons to 700 tons, through trains from the Paulista Railway, will require double-heading. Express trains of 500 tons can be hauled on the level at 60 m.p.h., and 35 m.p.h. on a gradient of 2·5 per cent. The locomotives are designed for multiple-unit operating to permit of dealing with the heavier trains which are anticipated in the future. The locomotives were designed by The English Electric Co. Ltd.; the mechanical portion of the work and the building of the locomotives are being carried out at the works of the Vulcan Foundry Limited.

* * * *

Need for Faster Wagon Turn-Round

ONE of the factors which has a bearing on the stringency in wagon supply which may occur this winter, and to which attention was drawn in our October 21 issue, is the speed with which the turn-round of vehicles is effected. During the war years a considerable campaign was instituted with the object of keeping the maximum number of wagons moving, and of obviating vehicles standing under load. In present circumstances the need for a speedy discharge of wagons is no less great. In particular this applies to coal wagons. Because of the long period of good weather which has marked the past summer, coupled with the high prices now ruling, stocks of coal at many merchant's yards and at the storage depots of some public utilities, are greater than normal. There is, therefore, a tendency for coal to be left in wagons for considerable periods.

The effect of this is to reduce the available wagon stock and to cause a stringency which could be avoided. The coal industry over many years has a poor reputation for the speed with which it deals with wagons, and to that extent the hold-up which is now occurring represents a constant factor, but one which is none the less embarrassing and costly to the railways. In so far as it is increased by delay in unloadings due to ample stocks already on the site, it represents a greater call on the number of wagons available. The position, which is always undesirable and costly to the railways, becomes of added importance at this time of year, when climatic conditions tend to slow down movement.

The levying of demurrage is no answer to the problem from the railway point of view. The need in this instance is not for the collection of the extra revenue, but for the release of wagons which can be put to much more profitable use. It is a case in which there is wide scope for helpful co-operation between two nationalised industries. The railways on their part, have shown considerable forebearance in the matter of the acceptance of coal of indifferent quality at high prices. They have done this because of their awareness of the fact that high quality coal is a first-class export priority. The Coal Board could do much to assist the railways at the present juncture by ensuring that railway wagons are speedily released.

* * * *

Civil Engineering on British Railways

IN his presidential address to the Institution of Civil Engineers, on November 1, Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Region, British Railways, reminded members that it was just 20 years since a railway engineer—Mr. W. W. Grierson, sometime Chief Engineer of the Great Western Railway—had been President of the Institution. As Mr. Grierson's address had dealt with "Railway Engineering and Transport," Mr. Robertson said he had decided to follow precedent by outlining the development of civil engineering on railways in the United Kingdom during the intervening 20 years. During that period there had been many marked changes, including changes in design, in the methods of dealing with track formation, drainage, and unstable conditions in banks and cuttings; in the design and construction of tunnels; in signalling and telephone equipment; and in the mechanisation of civil engineering works and of office routine. The more recent developments had been prompted mainly by the urgent need for economy in expenditure, which meant the conservation of manpower and the economic use of materials. The inventive and creative genius of railway civil engineers and their capacity for giving their best when it was most needed had also been largely responsible for modern developments.

Competition from other forms of transport had enforced curtailment of expenditure, and railway engineers had for many years devoted much energy, ingenuity, and time to the perfection of schemes to save money by introducing new methods of work and use of materials without impairing standards of maintenance. Large sums had thus been saved, and the importance of affording suitable time to engineers for careful thought and planning to such ends should be realised. Other reasons for development were to meet changing requirements of traffic, increase in axle loads, and the handling of heavier, faster, and more frequent trains.

Although the Grierson Committee (1918-24) had recommended the continued use of bull-headed rail track as standard for all British railways, increasing traffic and heavier loads had gradually made the maintenance of perfect alignment and level more and more difficult, even with the reinforcement of additional sleepers. Meanwhile, rising wages and cost of materials made reduction of track maintenance imperative. In 1936, however, Mr. W. K. Wallace, Chief Engineer, L.M.S.R., gave a first trial to 110-lb. flat-bottom track, and was shortly followed in this policy by the L.N.E.R. Mr. Robertson paid a tribute to these companies for freely imparting the results of their experience with this entirely new type of permanent way—and later, in 1939, with 131-lb. F.B. track—to the other main-line companies. By the end of the war, all four companies were relaying with F.B. rail track, and wide experience had been gained.

Different types of fastenings, base plates, joints, and depths of ballast below the sleepers were tried, so that by 1949 the Railway Executive was in a position to decide what should be standardised for future use throughout the United Kingdom. At the same time the whole British Railways system was classified as either "A" or "B" class for heavy fast traffic, for which 109-lb. F.B. track was being standardised, or "C" class for lighter and slower traffic, under which 98-lb. F.B. rail was considered suitable. The principal reasons for selecting these standards were that: (*a*) the 109-lb. rail was 59 per cent. stronger vertically and 136 per cent. stronger laterally than the old standard 95-lb. B.H. rail; (*b*) reduction of maintenance and simpler stock-keeping and office recording was secured owing to the F.B. rail track requiring 16,900 fewer components, including fastenings, for each mile of track; and (*c*) further considerable reduction of maintenance was found possible by reason of the greater stiffness and weight of the new standard rails. By the

end of this year over 1,000 miles of F.B. road would have been laid in this country.

The recent war caused an acute shortage of permanent way labour and also demanded the shortest possible periods of track possession. Railway engineers, therefore, had to consider the abandonment of the old manual-labour method of track renewals in favour of mechanisation. The latter finally took the form of the pre-assembled-track (P.A.T.) method introduced by the Southern Railway in 1947. It was first used for relaying in tunnels, but soon came into use in the open as well. In connection with track possessions and speed restrictions the President acknowledged the willing co-operation of the Superintendents of Operation.

He next referred to that "most difficult portion of the plain permanent way," the rail-joint, and mentioned efforts to improve it by such means as the introduction of the Brogden and Ellson special joints. The real solution of the problem was, however, to reduce the number of joints by welding the rail-ends together. Two systems of welding had been used extensively in various parts of the world, including the United Kingdom, the thermit and the electric flash-butt processes. The London Midland Region had also been experimentally successful with the oxy-acetylene process of fusion welding. The thermit process did not, in Mr. Robertson's view, provide a metallurgical junction of the rail-ends as thoroughly sound as that produced by the flash-butt process. Thermit welds did not stand up to the same tup test. Flash-butt welds, with post-heating after welding, returned the steel to a normal condition, by eliminating undue internal stresses; in fact, flash-butt welds stood up to the same tup tests as the rails themselves. In tunnels, where temperatures were comparatively constant, rails were welded together into long continuous lengths in this country, but in the open the longest continuous rail-length was 300 ft. In other countries much longer lengths were welded.

Another development referred to in the address was the use of pre-cast concrete for renewing roofs of engine sheds and building new running sheds. The Engineering and Research Departments of the L.M.S.R. were jointly responsible for pioneering this innovation, involving wind-tunnel, chemical, and other tests. Complete sheds of both the through and round-house types had now been designed and built with a minimum number of pre-cast concrete units. Mr. Robertson also referred to standardisation, the natural result of nationalisation, and said that a gradual reduction had been made in the number of load-gauges and profiles applicable to rolling stock, thus enabling a wider interchange of stock between the various Regions and sections of line. Load-gauge was specially considered in the case of bridge renewals where increased clearances were allowed when necessary.

This led the President to the subject of examination of the effects of various types of engine on underbridges in order to extend the interchange of engine-running between Regions. In practice, it was convenient to express the bending moment produced on an underbridge span by the various engine axle-loads in terms of the equivalent uniformly distributed load, or E.U.D.L., to be recorded on the bridge. However, variation in practice now made it necessary to recalculate the E.U.D.L. on a uniform basis, and an electrical machine had been developed to make the necessary calculations.

Turning to the subject of water supply, heating, and lighting, Mr. Robertson referred to the development of electric pumps controlled by automatic float switches, which had produced substantial economies in labour and other costs over the old steam- or oil-driven pumping systems. Water softening for supplies intended for use in locomotive boilers, had also received great attention. In large plants, dealing with rates of flow from 3,000 to 20,000 gal. an hour, the lime-and-soda principle was generally adopted, but the "Wayside" treatment, wherein chemical briquettes were introduced into the inlet supply to the storage tank, was also in extensive use. The principal lighting development was the fluorescent tube, a boon to workers in drawing offices, goods sheds, and elsewhere. The question of economising in space-heating was being considered.

Among other developments mentioned in Mr. Robertson's address were the use of pre-stressed concrete for bridges and sleepers, 450,000 of which were being put into the track this year; improvements in the layout of passenger and goods stations; and the "blanketing" method of improving unstable formation. In the course of the closing paragraphs of his address, the President said: "May I, without any presumption, add a word of warning and friendly advice to those who guide the destiny of British Railways. Let nothing be done which will in any way belittle the technical status or the value of the services of the chartered civil engineers and their staff, on whom so much depends for the maintenance and safe operation of the railways and for the comfort of passengers."

* * * *

The Indian Railway Inspectorate in 1948-49

THE report of the Chief Government Inspector of Railways in India on the working of the Railway Inspectorate during the year ended March 31, 1949, opens with a reminder that it is under the Ministry of Communications and is independent of the Ministry of Railways (Railway Board). The organisation of the Inspectorate remained substantially unaltered, but Partition necessitated slight readjustment of its jurisdiction, notably in the Punjab. A more widespread readjustment is under consideration, but is dependent on the report of the Indian Railway Enquiry Committee on the general regrouping of the railways. As this report is not expected to be completed for at least five years the question of modifications in the Inspectorate is in abeyance.

The route-mileage of line under the Inspectorate on March 31, 1949, was 33,644, of which 31,154 miles were classified as Class 1 systems. The Jodhpur and Bikaner State Railways, 1,690 miles, remained under the direct charge of the Chief Inspector, the four circle Inspectors being responsible for the remaining 31,954 miles. Nearly 22,000 route-miles, or about 65 per cent. of the total mileage, were inspected during the year, 52 per cent. of this figure in the form of detailed inspection and 48 per cent. tour inspection. Some 62 miles of new lines were inspected in detail before being opened for the carriage of passengers, and 44 miles of line dismantled during the war were inspected before being reopened; 21 miles of doubling were also passed for opening by the inspectors.

During the year, 25 accidents were enquired into by the Government Inspectors. They were: ten collisions in which passenger trains were involved, four derailments of passenger trains, three cases of failure or defective condition of locomotives or rolling stock, three failures of the permanent way, four fires in passenger trains, and one instance of two passenger trains colliding with a road vehicle at a level crossing. One of the derailments was due to train-wrecking. Of the ten collisions, five were due to failure on the part of station staffs, three were due to failure of the train crews, and two were caused by failure of both station staffs and train crews.

The two most serious of these accidents were both derailments. On November 15, 1948, when running between Furkating and Kamarbandha-Ali stations on the Assam Railway, No. 7 up passenger train was derailed. The engine tender and four leading coaches left the road, with the result that 17 persons, including the driver and both firemen, were killed, and 40 injured, 18 of them seriously. The Inspector's finding was that derailment was due to the YD/1 class locomotive oscillating laterally and so distorting the track. As a result, this class of engine was taken off the passenger link. In the second case, No. 9 up Dehra Dun express, E.I.R., was derailed at mile 160 on the Grand Chord line. Here, the engine, tender, and four leading coaches capsized and the fifth and sixth coaches were derailed; 33 passengers were killed and 96 injured. This appeared to be a case of sabotage.

Recommendations by the Government Inspectors included: (1) that all trains running at night should be provided with electric head lights. Had they been fitted, some of the collisions reported could have been averted; (2) that electric token instruments be installed on certain sections of line *vice* the paper line-clear system; (3) that interlocking be installed at certain important stations and track-circuiting at others; and (4) that at important level crossings with dense traffic, signals and interlocking should be provided. This latter recommendation has reference to the instance of a lorry breaking down and fouling both up and down lines at a busy level crossing. An up passenger and down express collided with the obstruction almost simultaneously.

Burma Railways

THE report of the Burma Railways for the year ending September 30, 1948, covers their transfer to Burmese control as from January 4, 1948, on the creation of the Union of Burma. On that day experienced Burmese railway officers were appointed to some chief posts, notably U Tun Thwin as General Manager, the new designation for Chief Railway Commissioner, and Brigadier J. C. B. Wakeford, the former Chief Railway Commissioner, became Principal Technical Adviser (Railways) to the Government of Burma. The Commercial and Operating Departments at the same time were amalgamated under the Traffic Manager.

The year 1948 proved to be a hard one. Civil unrest began in Central Burma and spread outwards, and the railways were a main objective of the insurgents in their efforts to disrupt commmunications. Bridges were dynamited, stations looted and burnt, and trains held up and robbed, or fired on, or derailed by sabotage. The disturbances retarded post-war reconstruction and undid much that had been done already. Train services on some sections occasionally had to be suspended, and night running over the entire system had to be stopped from April 25, 1948. Telegraph and telephone wires were cut repeatedly. Loss due to civil unrest amounted to Rs. 1,174,000 up to the end of the year.

The following are some principal figures, with comparison with the preceding and the last normal (pre-war) year of working:—

	1940-41	1946-47	1947-48
Route mileage open	2,058	1,516	1,777
		(millions)	
Passenger-journeys	19·76	8·23	10·15
Passenger-miles	499·71	—	300·51
Goods tonnage conveyed	4·03	1·86	2·11
Goods ton-miles	707·76	318·87	382·62
		(millions of rupees)	
Passenger revenue	9·87	13·87	13·43
Goods traffic revenue	30·93	33·67	31·52
Gross traffic receipts	43·19	49·42	46·66

Due to the exceptional circumstances, audit accounts are not yet available, and no figures are given of working expenditure. The combination of a rise in passenger-journeys with the slight fall in passenger receipts was caused by an increase in comparative short-distance traffic as a result of stopping of some through services and of public reluctance to undertake long journeys in the prevailing conditions. Partly as a consequence of the withdrawal of British armed forces from Burma, there was a considerable decline in military and other Government traffic. The increase in goods traffic, of which 60 per cent. of ton-miles were agricultural, was due mainly to a revival of rice cultivation and, to a lesser extent, of timber felling.

Despite the disturbances, some 260 route miles of line were re-opened to traffic for the first time since the Japanese invasion. Much repair work was done on the Rangoon-Mandalay main line, but rehabilitation of double track between Rangoon and Pegu was not undertaken, for want of funds and materials. The restoration and remodelling of important yards at Rangoon, Prome, Pegu, Toungoo, Mandalay, and elsewhere were begun, and were progressing well at the end of the year. Bridge reconstruction was well advanced. An organisation was set up for the reconstruction of the Gokteik Viaduct, which was delayed by non-delivery of steel-work; meanwhile, a slide with double track was built across the Gokteik gorge to tranship engines and rolling stock, to work the north portion of the Lashio branch and also for container traffic for the Burma Corporation Limited. The report does not mention the Burma-Siam railway.

The locomotive situation at the end of the year was satisfactory. In 1942, before hostilities, there were 366 locomotives, in January, 1946, 83, and at the end of the year under review, 274, with an expectation of 322 locomotives in 1952. This figure will contain only 89 pre-war engines, the balance being made up of 90 imported under military commitments and 143 ordered from Britain. The carriage situation was far less satisfactory; out of 1,167 carriages in 1942, only 348 were in service at the end of 1948, and in default of delivery of new stock ordered from Britain and India a number of bogie covered goods wagons were improvised as passenger coaches. It was decided to replace the three classes of passenger accommodation by two—upper and lower, the upper class to be superior to pre-war second class. There were some 7,700 wagons in service as compared with 10,000 in 1942, with 2,950 wagons on order from Britain and India.

The Union Government appointed a committee presided over by U Lun Baw, Chairman of the Public Services Commission, to enquire into the working of the Burma Railways and make recommendations accordingly, with special reference to corruption, wastage of railway funds, and the progress of rehabilitation of the system. The Committee sat until October 31, 1948, and its report now is awaited.

* * * *

Welding as Applied to Locomotives and Rolling Stock

MR. O. V. S. BULLEID, the new President of the Institute of Welding, in his presidential address on October 25, 1949, traced the development of the application and technique of welding, particularly as applied to railways, locomotives, rolling stock, and wagons. Of particular interest was his reference to the double-deck carriages for the Southern Region, British Railways, the innovation of which would be of considerable assistance in helping to relieve the serious overcrowding which occurred, especially during rush hours. Mr. Bulleid said that the building of this type of carriage would not have been feasible had it not been possible to fabricate the body frames. He made reference to this proposal in his paper to the Engineering Section of the British Association, mentioned in our September 24, 1948, issue. He referred to the application of welding to a carriage underframe in the York carriage shops of the London & North Eastern Railway, the result being so satisfactory that it led to the general introduction of this method of construction. The design had followed the same characteristics as the riveted underframes; the result was a lighter underframe and more rigid construction which required less camber. He did not believe there had been a single case of a welded underframe failing or being the cause of any complaints.

The next development he referred to was the application of welding to wagon underframes carried out at Gorton; the work was properly jigged up with manipulators, resulting in a better underframe. Mr. Bulleid referred to what he called the tyranny of standardisation, and to the need of paying attention to design as visualised from the point of view of welding to obtain the best results from fabricating of various materials which had contributed so much to the solving of some of the problems in regard to the weight of rolling stock. He also recalled the introduction in 1935 of locomotive boilers which had been put into service with welded barrels; the boilers are still in service and have required no repairs. A further interesting example was his reference to the introduction in 1941 of locomotive boilers with welded inner and outer fireboxes, which had resulted in the saving of considerable weight. He was of the opinion that the value of welding as related to repair work was too great to be ignored, and enumerated many instances where welding had gradually extended its field of application to all classes of locomotives and different types of rolling stock with considerable success. Some of the repairs would have been difficult had not welding been used. He referred to the introduction of the flash-butt welding machine which had carried welding into other fields; as an example, he mentioned the manufacture by welding of foundation rings for boilers from square bar, which proved a time-saving method as compared with the previous method of manufacture, and hoped that he had given sufficient examples to indicate the progress in the application of welding. He paid tribute to the efforts of the members of the Institute who, by keeping before engineers examples of construction, and by lectures, papers, and books, have disseminated a knowledge of work done and of the possibilities of the future of welding.

It was his view that welding was a craft which demanded a high standard of integrity and, therefore, it behoves us to develop the training of men who will provide the craftsmen we need for its development, and that the B.W.R.A., which had given every assistance in research, should be supported. The care of the welders should not be overlooked, damaged sight being something to prevent at all costs, and he considered that the correct colour for painting booths was an important factor in preventing eye-strain.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Railway Position in North America

Hampstead. October 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—One or two figures of recent date confirm the view about North American trade, expressed in your October 7 editorial. To September 1, U.S.A. coal shipments to Canada were 12,558,000 tons, or 25 per cent. below the corresponding period of 1948. To September 17, the wagon loadings on Canadian railways were fully 3 per cent. below last year and the number of wagons received from connecting lines was 10 per cent. less. The third item, taken from the *Board of Trade Journal*, shows that, at the end of 1947, the U.S.A. had $5,817,000,000 invested in Canada and the U.K. only $1,642,000,000. In the 10 years 1937 to 1947, the U.S.A. money increased by $1,000,000,000 and the U.K. investment decreased by $800,000,000, with the result that the United States controls a great deal of Canadian business.

Taken together, these figures point to a slackening in Canadian industry rather than to an expanding trade with this country.

Yours faithfully,

STATISTICIAN

New Western Region "1500" Class 0-6-0

Hampton, Tackley,
Oxford. October 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—This new design, described in your October 21 issue, is a great step forward and breaks the monotony of traditions so rigorously pursued by the late G.W.R. directors—and also that of the late Mr. G. J. Churchward, the Great Western's wonderful C.M.E. of those days when he produced his 4-6-0 passenger engines.

Working as a locomotive department man and on many Colonial railways, I have now been amongst engines on every railway fitted with the Walschaerts valve gear. I have noted the much better steam distribution and freer exhaust which this gear provides, especially under heavy loads.

It is a treat to hear some of the North Eastern engines passing my house with heavy loads, and the steady even purr of these locomotives.

May this be a forerunner of a new departure in the design of a 4-6-0 passenger engine fitted with Walschaerts valve gear for the Western Region by Mr. F. W. Hawksworth.

Yours faithfully,

W. EVETTS

Passenger Services on the West London Railway

17, Margravine Gardens,
Hammersmith, W.6. October 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Skeat, in his letter in your September 30 issue, very rightly draws attention to the absence of a regular service of passenger trains over one of the most important railway routes in the London area—the West London line. The pre-war services should be reinstated as soon as possible and electrification of the Olympia-Clapham Junction section put in hand.

The neighbourhood of this line throughout its length is well populated, and there must be more "special" traffic possibilities on this line than over any other in London, most of which can only be handled efficiently by rail transport. The football traffic for Stamford Bridge is one case. Reopening of Chelsea Station, which is opposite the ground, would ease the load on Walham Green Station, and would provide in many cases a more direct route to and from the stadium, as there is no parallel road route across the Thames to Battersea.

West Brompton Station is adjacent to Empress Hall and Earls Court Exhibition, and interchange could be conveniently made with the District Line. Olympia Station, of course, requires rebuilding, with an entrance on Hammersmith Road.

Uxbridge Road Station should be renamed Shepherds Bush East, with the adjacent station on the Central Line, with which proper interchange facilities could be easily provided.

The station at St. Quintin Park, which was destroyed during the war, should be rebuilt further south, so that, although still serving this populous area, it would be within easy reach of White City Stadium.

From Clapham Junction frequent electric services run to all parts of South and South-West London—from Beckenham round to Windsor. Traffic to West London would then travel by this quicker route and would ease the load on Victoria and Waterloo. Similarly, Willesden Junction is well situated, being the focal point of the London Midland Region electric services in North-West London.

Reopening of the West London Line would result in greatly improved transport facilities in this area.

Yours faithfully,

N. S. HUREORD

Preservation of Locomotives

The Deanery, Stanley,
Falkland Islands. October 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The photograph in your issue of August 19 of forty-two-year-old locomotive No. 4007, formerly *Rising Star*, being turned at Paddington prompts the suggestion that one of the first batch of "Stars" should be preserved. There appear to be only three left now, *North Star* having been rebuilt as a "Castle" and the remainder scrapped. To this I would couple a plea for the preservation of one of the first batch of two-cylinder 4-6-0s of Dean's design; already *William Dean* has been scrapped. These two classes marked a new era in express passenger engine design and "Kings," "Castles," "Halls," "Manors," "Granges," and "Counties" may all be said to be derived from them, also many of Sir William Stanier's L.M.S.R. designs.

Because of the regrettable breaking up of *Lord of the Isles* no G.W.R. single has survived; could one of the three remaining 0-6-0 pannier tanks of the "Sir Daniel" class (designed by Armstrong) be preserved, and perhaps be restored eventually to its condition as a 7-ft. single?

Yours faithfully,

R. G. R. CALVERT

Railway Fares and Services

8, Highwood Gardens,
Ilford. October 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Roberts, in his letter of September 6, published in your issue of September 30, pages 379-80, claims that "promiscuous excursions . . . are not run in any other country."

If the operative word here is "promiscuous" I might agree, but I should like to point out that the S.N.C.F. has introduced, this summer, excursion trains from Paris to various watering-places on the Channel coast, and that they have been well patronised. Further, the Swiss Federal Railways, for some time, have run special trains at reduced fares from different parts of the country, usually covering a circular journey from the point of origin.

As a footnote, the Swiss Federal Railways give in the official booklet on their manifold activities, the startling information that "94·9 per cent. of all travellers . . . make use of reduced fares." Few people would quarrel with the statement that the Swiss Railways represent one of the most efficient railway organisations; yet even they feel the need for reduced fares to get people to travel by rail.

Yours faithfully,

C. H. DICKSON

Closing of Wayside Stations

16, Harrowby Lane,
Grantham, Lincs. October 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The news that Barnby Moor Station, Eastern Region, is to be closed is not unexpected. The *Manchester Guardian* reported that the takings for September came to 7s. 6d.

Barnby Moor has had a wretched train service since 1939, like all the other small stations between Peterborough and Edinburgh, and the current timetable gives one down train, at 2.14 p.m., and two up trains, at 7.46 a.m. and 5.11 p.m., each weekday, with nothing at all on Sundays. With this service it is rather a wonder that the takings have been as much as 7s. 6d. in a month.

This case is typical of events in the Eastern Region, although in fairness it must be said that the decay began during the war. No effort whatever is made to attract passenger traffic at wayside stations, and often every obstacle is put in the way of custom which the bus concerns are all too eager to seize and to encourage with cheap fares and fairly frequent services.

The fall in local passenger traffic in this Region is altogether alarming. Because of heavy main-line traffic, this fall is hidden in the monthly accounts and its significance cannot gleam

through the general trend. There is, to give one instance, a frequent train service between Grantham and Nottingham (23½ miles, taking 45-54 min., with monthly fares at 6s. 4d., day return fares at 4s. 8d., and occasional Saturday tickets at 2s. 9d.

Passenger traffic now is only a fraction of what it was before the war, when the day return fare was 2s. 3d. The reason is that the crowds now go by bus (period return fare 2s. 4d., time 85 min. nominally, although none of the services runs to time, and the effective journey is about 65 min.), and it is commonplace to see two double-deck vehicles on most of the services, where there was formerly only one single-decker. Need I add salt to the wounds by saying that one of the companies running this service is a puppet of the B.E.T., while the other is, incredibly, a part of the B.T.C.?

What hope is there for an efficient transport system if: (i) the Railway Executive pays no heed to local needs and charges exorbitantly for even day return tickets, (ii) the absurd difference continues between road fares and rail fares, (iii) large groups of road passenger interests still are outside the Commission's control?

I suggest earnestly that the Executive should actually give railway facilities to country areas having stations rather than take the illogical and unwise course of withdrawing what is only a tragic mockery of a service and strengthen thereby their bitterest opponents.

Yours faithfully,
J. H. THORP

Shortage of Labour

Rosebank,
66, Bower Hill,
Epping. October 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—From boy to chief there is a great shortage of labour on the railways and experienced staff do not exist in sufficient numbers due to wastage.

It prompts me therefore to suggest, as a means of filling the gap and also training the younger men, a panel of retired staff should be enrolled so that lifelong experience is not wasted.

Various working parties are also being formed to investigate various subjects and members of such a panel could be co-opted to advantage.

There are many individuals available, who after 40 or 50 years may be glad to retire from active service, yet be glad to help in part-time work of such a nature.

This proposal, if adopted, would help both the country and railways to recover.

Yours faithfully,
OLD BILL

Future of the Rural Branch Line

37, Northampton Avenue,
Slough, Bucks. October 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I cannot understand the intentions of the British Transport Commission regarding the present method of dealing with branch lines, and the provincial bus services.

The former main-line railway companies were able to provide efficient, reliable, and convenient branch line services over many parts of their well-organised systems. London shared the privilege of having some of these useful lines, but they are now no more. The ex-L.M.S.R. provided excellent rail facilities to Alexandra Park, Potters Bar, Kensington Olympia, and Poplar; these services were always well patronised, and I invariably used them in preference to the miserable competing bus services.

It seems to me that the B.T.C. has a campaign to close all branch lines, reduce the suburban rail services, purposely to force the travelling public on to the bus services operated by the B.T.C. and congest our overcrowded roads, which are already becoming death traps. Surely where there are railways, branch lines, or others, with the use of diesel railcars, or the steam-operated push-and-pull, shuttle services could operate over these lines, with great satisfaction to the community, and to the financial advantage of the Railway Executive.

I recently made the down trip on one of the summer excursions, from Slough to Southend. The route was from Slough, to Kensington Olympia, *via* Acton, and North Pole Junction, locomotives were changed at Kensington, and with an approximate weight of 430 tons, we proceeded *via* Willesden Junction, Kensal Rise, Hampstead Heath, Canonbury, Hackney, Homerton, and Bow, joining the Fenchurch Street-Southend line at Bromley. The condition of the stations on the disused Broad Street-Poplar line, apart from being dirty, was quite good, in fact, good enough to be used for passenger services again.

I see no reason why Kensington Olympia Station should not be used far more for passengers than it is; the service from the London Midland Region should operate again, and I think it would be popular to have a connecting service from Acton (Western Region)—the present services to Kensington are frightfully slow from Slough, either by Green Line, or by rail, by which one has to go to Paddington, then to Earls Court, and so on to Kensington.

Yours faithfully,
EDWARD A. WIGGINS

Station Amenities

26, Everest Road,
Birkenhead. October 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—There has been some criticism in the local press, and in your correspondence pages, of the ill condition of Lime Street Station, Liverpool.

Such criticism, fully justified, applies, and has applied for a great many years, equally to other main-line stations far too numerous to mention. The excellence of the Waterloo platform layout, the booking offices of York and Newcastle, the platform and train arrival indicators at Glasgow Central, and the waiting hall at Euston, merely emphasise the deficiencies in these and other respects elsewhere.

At Chester, Preston, Manchester Central, and Liverpool Exchange, to instance but a few, the lighting, waiting room, booking hall, and barrier arrangements do not bear even cursory examination.

During the years of grouping much was done at such centres as Bristol, Taunton, Doncaster, and Southampton, but these are glaring exceptions rather than typical examples when set against the railway background as a whole.

That the efficient running of the railways is essential to the well-being of the nation is accepted by all readers of *The Railway Gazette*. So much improvement is necessary to attain such efficiency that a loss on financial working would appear to be inevitable, in view of present-day costs and wages, and it is difficult to understand how this could have been borne by the companies.

Ignoring all aspects of politics and principles of nationalisation in general, the State ownership of the railways does seem to offer possibility of eventual benefit to the travelling community.

Yours truly,
R. W. HANBIDGE

Long-Distance Passenger Patronage

23, Somertrees Avenue,
S.E.12. October 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The editorial paragraph on "Long-Distance Passenger Patronage" in your issue of October 21, omits some important considerations which now contribute to the loading of the long-distance trains mentioned. The 10 a.m. from Kings Cross, formed before the non-stop era, with portions for Glasgow, Perth, Edinburgh, and Aberdeen, was very frequently preceded by a 9.50 a.m. to Newcastle or Edinburgh, and the 10 a.m. from Euston no longer carries an Edinburgh portion and has no connection for north of Perth. The 12.20 p.m. from Kings Cross, which of course replaces the Newcastle portion which ran on the 11.50 summer Scarborough train, certainly does indicate a definite growth of London and Newcastle traffic, but as regards the Kings Cross and Leeds service, the worsening of the old "Midland" trains from St. Pancras must be remembered. To quote one example only—the pre-war 9.5 and 10 a.m. from St. Pancras now leave at 8.50 and 9.40, and take 59 and 53 min. longer to reach Leeds than in the Spring of 1939, which, together with the loss of the 7.25 a.m. from Kings Cross, naturally affects the loading of the 9.20 and 10.15 departures.

The case of the 12.5 and 12.15 p.m. trains from Euston is even more significant. The pre-war "Comet," at 11.50, was frequently divided; the 12.5 to Liverpool carries to Crewe a portion for Preston and Barrow—the equivalent of the pre-war 12 noon "Lakes Express" (now a week-end train, running in summer only) and of an 11.55 from Euston to the Furness line and Morecambe, which was a wartime service, and the 12.15 to Manchester has the additional duty of serving Stoke and carries the traffic of the vanished 12.25 from St. Pancras to Manchester. Your columns have often instanced the results of the inferior services now given from St. Pancras, and here you have—perhaps unwittingly—supplied a most excellent case.

Yours faithfully,
R. E. CHARLEWOOD

The Scrap Heap

New York's first subway was opened on October 27, 1904—14 years after the City & South London Underground.

* * *

Locomotive Impounded

On October 26 police impounded the engine of the Paris-Brussels express at the Belgian border and arrested the driver and fireman after Customs officials had searched the train and found a considerable quantity of cognac and perfume under the coal in the engine tender. The express waited 90 min. at the border until another engine and crew were brought from Charleroi.—*From "The Manchester Guardian."*

* * *

Not the Best Type

The special boat train carrying passengers from New York who had crossed in the French liner *De Grasse* broke the post-war record for the run from Plymouth to London by eight min. on October 19. The distance from the docks to Paddington, over 226 miles, was covered in 3 hr. 59 min., against the record of 4 hr. 7 min. set up on September 26.

Driver J. Friend, of Plymouth, said that he could have taken three min. less if the the train had not been stopped at the Westbourne Park signals, just outside Paddington. "The track," he said, "is improving and will soon be up to pre-war.

"The train was of only five coaches and 179 tons, against the usual 10 to 12 coaches for this run. But the engine was not the best type for record-breaking." He had touched 80 m.p.h. The train left Plymouth at 8.4 and reached Paddington at 12.3. Several passengers described the journey as "very smooth."—*From "The Daily Telegraph."*

Offensive

Why not more non-smoking compartments? Many travellers suffer intense pain in the eyes through contact with cigarette smoke. Most smokers, holding the cigarette well away from their own faces, give other passengers more of the smoke than they themselves get. I have considered carrying an offensive spray by way of retaliation.—*From a letter to the "Daily Mail."*

* * *

48-Week Shift

A reminder of the "lodging turn" rumpus on British Railways, when engine crews were asked to spend the night away from home, is this report on how the Russians deal with the problem.

Each long-distance train has three crews, and sleeping-cars for their use are attached to the engines.

But do not imagine that these fortunate Communist engine drivers are whisked back home after a shift on the footplate.

Far from it. The three crews stay with their engine for 48 weeks at a stretch, then have a four weeks' rest.

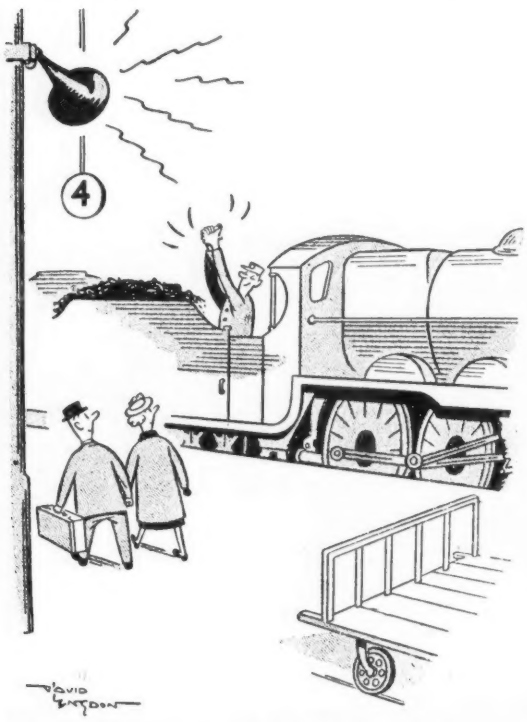
And during their 11-month shift they must maintain their engine as well as drive it.

They have an incentive. For if there is a breakdown they get no pay.—*From the "Sunday Express."*

* * *

"Vista-Dome" Observation Cars

From recent correspondence in our American contemporary *Trains* it appears that the "Vista-Dome" and "Astra-Dome" cars now being built in such numbers, for inclusion in streamline trains operating over scenic routes, are not quite the novelty that was represented on the appearance of the first of them on the Chicago, Burlington & Quincy Railroad in 1945. As far back as 1891 drawings appeared in the *Scientific American of* "McBride's Observatory Sleeper," which had three raised glass-enclosed sections at different points along its length: above the ordinary seating, with its usual transverse arrangement and central gangway, there were to be seats arranged longitudinally, back-to-back, approached by stairways, from which the passengers who occupied them would look at right-angles to the car. But they would have to turn right round in their seats to see anything on the opposite side. There seems no record that any such cars were built. Eleven years later, however, the Canadian Pacific Railway built a "double cupola observation car," rather resembling in appearance an elongated caboose. This had a central observation section, with revolving chairs and more revolving seats in the two raised cupolas, one at each end, which were glazed at the sides but not above. Three more of these vehicles were built in 1906, but all disappeared about the beginning of the 1914-1918 war; they were used through the Rocky Mountains.



"The train now standing at Number Four platform . . ."

[Reproduced by permission of the proprietors of "Punch"

* * *

100 YEARS AGO

From The Railway Times *Nov.* 3, 1849

Any one who has observed the political course of her Majesty's present Ministry must be fully aware that the government of the country is in any hands but theirs. Upon all questions of policy the sway is at the command of those who can assume a frowning aspect, and put in peril the tenure of their places. Hence it follows, that like all weak and feeble natures, they find a vent for their peevishness and irritation whenever the ground is open, or the opposition remote. In no case is this more evident than in their management (God save the mark!) of the noble colonies and dependencies of the empire. Upon them are launched the petty rigours of that absolutism which finds its curb in the more instant force of public opinion at home. The rulers, who quail before the Corporation of London, when the removal of an abuse is agitated, banish their fears, when a community some 10,000 miles distant, is to be shaken to its core by innovation or arrogance. A murmur from Guildhall can annihilate the designs of those who are deaf to the unanimous outbursts of our fellow subjects in Canada or at the Cape. Again, whatever is demanded by any prevailing party at home is conceded, however unpalatable the surrender of long-asserted principles, while the reasonable, the beneficial requirements of the distant are passed by unheeded.

* * *

By the High Seas

Railway passengers arriving in North Road Station, Plymouth, on October 25 reported that the waves from the sea between Dawlish and Teignmouth were so high that the window of a compartment in the 5.30 p.m. train from London was smashed by the water. Heavy seas invaded the railway line just outside Penzance Station, flooding it to such an extent that all railway traffic was suspended.—*From "The Western Morning News."*

* * *

Train Stops for Lunch

The needs of travellers from Ireland, whose steamer docked 12 hours late at Stranraer on October 25 owing to heavy gales, were specially catered for by London Midland Region officials.

A special train was run to Euston, arrangements being made for a stop at Carlisle so that lunch could be taken in the refreshment rooms there, and a dining car was hurriedly brought from Manchester to join the train at Crewe.

As the train speeded southward, the passengers were consulted as to their destinations, and the train was stopped at points most convenient to them.

* * *

British Railways' Colour Schemes

Plum and spilt milk,
Chocolate and cream,
The railways became
A gourmet's dream.

With engines green
As astringent lime,
Or blue; they ran
To the sea on time.

It could not last,
On our homeward way
The engines were finished
In rust and grey.

W. D. G.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Import Control and Revenue

Mr. P. O. Sauer, Minister of Transport, discussed the effect of import control on railway revenue when he opened the annual congress of the S.A.R. & H. Artisan Staff Association in October. The Minister said that although import control and devaluation were necessary and desirable for a healthy economy in South Africa, they embodied certain disadvantages for the railways. The transport of imported goods had always been a stable source of revenue to the administration.

Before devaluation large orders had been placed in the U.S.A. and Canada for railway equipment. This would now cost 43 per cent. more. Where orders for wagons had been placed, prices had increased by 30 to 33 per cent. The railways were moving through a critical period, he said, and there was much to be gained from a closer co-operation and understanding between the Minister, the administration, and the staff. He hoped that soon the economic position of the railways would allow of the improvement of the amenities and working conditions of employees.

Record Earnings

Railway earnings for the week ended October 15 reached the new record level of £1,563,979. This figure was £13,786 higher than during the previous record week, that ending on July 2 last.

Summer Train Services

The summer train schedules will come into operation on November 28. For this year's summer timetable, services between Johannesburg and Cape Town, Port Elizabeth, East London, and Mossel Bay, and between Cape Town and Port Elizabeth *via* Mossel Bay, have been augmented. On the Johannesburg-Bulawayo service, one of the four trains a week in each direction was withdrawn as from September 13. During December, 1949, and January, 1950, an additional train has been scheduled between De Aar and Walvis Bay.

The "Blue Train" will continue to run twice a week in each direction between Johannesburg and Cape Town, but the northbound schedule has been reduced by ten minutes to bring the arrival time at Johannesburg to 2.15 p.m., and departure times from Cape Town have been altered to 10 a.m. The ordinary passenger train, at present four times a week, will run daily during the summer.

EAST AFRICA

Meeting of Transport Advisory Council

The Transport Advisory Council met in Nairobi recently under the chairmanship of Sir Reginald Robins, Commissioner for Transport, when various recommendations by the Railway & Port Committees of the Council were considered. The expenditure of approximately £2,000,000 on new works projects was recommended; some £500,000 is for works on railway account, and the rest for port development projects. The railway expenditure covers the purchase of four Mikado locomotives, six diesel shunting locomotives, eight first class coaches and 34 bogie cattle wagons, all for the Tanganyika Section. Provision has also been made for extensions to the railway wireless communications system; improvements in water supplies; new workshop equipment; additional houses for railway staff; and the re-commissioning of two lake vessels.

The principal item in the port development projects is the construction of a general cargo quay and bulk oil jetty at Mtwara, the terminus of the Tanganyika Southern Province railway, which is estimated to cost just over £1,000,000.

The Transport Advisory Council recommended that tenders should be called for the construction of two deep-water berths at Dar-es-Salaam. The Report on the possibilities of the development of Dar-es-Salaam into a major port was considered and it was recommended that further investigation should be conducted into the improvements that might be made to the entrance channel and basin before any major expenditure on port development was incurred.

Work is in progress on the preparation of a uniform tariff of railway rates and charges which will be applicable throughout the Harbours system. A report was presented to the Transport Advisory Council which noted that, due to the rapidly increasing costs of operation, it was unlikely that the present level of railway rates could be maintained much longer.

Consideration was given to the terms of the East African Railways & Harbours Administration Bill, the principal object of which is to provide, in one comprehensive Act, for the complete amalgamation of the transport services and harbour facilities formerly administered by the Kenya & Uganda Railways & Harbours and the Tanganyika Railways & Ports Services. After making minor amendments the Council recommended that the Bill should be submitted to the Central Legislative Assembly.

CEYLON

Relaying of Trincomalee Line

The light railway from Maho to Trincomalee with connection from Gal-Oya Junction to Batticaloa is laid with 46½-lb. section rails which restricts the through working of trains with heavy loads. It has therefore been decided to relay, in stages, the whole section, a total length of 175 miles, with 80-lb. rails to bring the line up to main line standard for operating faster and heavier trains.

Provision to begin the work is included in the Railway Department's Estimates of Expenditure for the financial year October 1, 1949, to September 30, 1950. Apart from substituting heavy rails and stone ballast, the strengthening of a number of bridges is involved. The work is estimated to cost approximately Rs.25,000,000, and assumes great importance in view of the future development of large tracts of land in the eastern parts of the country with the completion of the Gal-Oya Reservoir Scheme, which is now in progress, and the major irrigation projects at Minipe, Kagama, Polonnaruwa, Elahera, and Minneriya which the line serves. The work of strengthening the permanent way and bridges will be spread over a period of years.

CANADA

Montreal-Boston Trains Diesel Hauled

Canadian Pacific Railway passenger trains running between Montreal and Boston will become the first main-line passenger trains in Canada to be hauled by streamline diesel locomotives specially designed for passenger service, when three of the latest type General Motors diesel locomotives are delivered this month.

The three 2,250-h.p. locomotives, which are of even later design than the locomotive on the General Motors "Train of Tomorrow," will complete the dieselisation of the C.P.R. 171-mile line between Montreal and Wells River, Vermont.

The changeover from steam on this important international route began last June and there are now twelve 1,500-h.p. streamline freight units, five 1,500-h.p. and three

Landslide in New Zealand

A landslide which occurred on the Wanganui—New Plymouth line, North Island, New Zealand, just after an express had passed the spot

1,000-h.p. shunters for the section. In addition to other work, the 1,500-h.p. shunters haul the C.P.R. local passenger trains between Montreal and Newport, Vermont.

The new passenger units are being completed in the General Motors locomotive plant at La Grange, Ill. They are capable of a maximum speed of 85 m.p.h. and will haul the "Alouette" and "Red Wing" expresses which link Montreal and Boston.

ARGENTINA

Accident on General Mitre Railway

A serious accident occurred on the General Mitre Railway on October 11, when an electric suburban train from Presidente Perón to Tigre crashed into a goods train from Evita to Presidente Perón, which was leaving the main line to enter the goods yard at the latter point. The cause of the accident is presumed to be non-observance of signals by the motorman. A second electric train which pulled up short of the scene of the accident caught fire due to a short circuit and three of the coaches were gutted. The death-roll amounted to 18, and another 73 passengers were injured.

B.A. Transport Corporation Absorbed

A further development has now taken place in urban transport in the city of Buenos Aires and its suburbs. The Buenos Aires Transport Corporation, which is in liquidation, has now been absorbed by the Ministry of Transport, and the Transport Control Committee of the city of Buenos Aires has been abolished.

Level Crossing Barriers Abolished

The Ministry of Transport has decided to do away with barriers at a number of level crossings of secondary importance, replacing them with automatic bells and signal lights.

Local Construction of Fruit Wagons

The General Roca Railway has placed in service five fruit wagons, constructed entirely in its workshops at Remedios de Escalada. These are shortly to be followed by a further 150.

Puerto Santa Cruz-Rio Turbio Railway

Notwithstanding the purchase of 120 Sentinel steam road locomotives for the transport of coal from the Río Turbio mines to the port of Santa Cruz (see *The Railway Gazette* of July 8), it would appear that the construction of a railway between these points has not been altogether abandoned, according to a speech recently made by a Government spokesman, who estimated the total deposits of coal to be approximately 250,000,000 tons, with the possibility that further exploration might bring the figure up to as much as 1,000,000,000 tons. According to the speaker, a broad-gauge line would be built, as "without it the coalfield could not be economically worked."

Workmen's Dwellings

A block of dwellings for railway workers has recently been erected in the vicinity of the Remedios de Escalada workshops of the General Roca Railway. Their construction was carried out in the record time of sixty days.

Vaccination Certificates Required for Railway Travel

Because of a recent outbreak of "alastrin" (a disease similar to smallpox, although less severe), the entire population of the country has been required to submit to vaccination. After October 1, vaccination certificates became indispensable for a number of daily activities, including main-line railway travel.

General Belgrano Railway Extension

A third rail is to be laid on the Buenos Aires Port Railway in order to enable the narrow-gauge trains of the General Belgrano Railway to run into Casa Amarilla goods station. The estimated cost of the work is 271,985.28 pesos.

Publications Received

Erdbau — Linienführung, Gestaltung und Erdarbeiten der Verkehrswege (Earthworks — Alignment, Construction and Earthworks of Traffic Routes). By Professor Wilhelm Müller. Berlin: Wilhelm Ernst & Sohn. 8¼ in. × 5¾ in. 287 pp., 121 illustrations, 39 tables. Price DM. 19.—The subject matter of this book, which is by one of the leading German experts on railway and road planning, is more appropriately expressed by its sub-title than its main title. Of its 287 pages, 220 deal with the alignment and construction of railways and roads, and the discussion of earthworks proper is confined to the last two chapters. The work has been sponsored by one of the leading technical publishers expressly to record the latest standard of German knowledge on the theory and practice of railway and road planning. It may be argued that more room has been devoted to theory than is likely to be needed in practice, in an age when new railways or roads are built mostly to satisfy known traffic demands, to fill known gaps in an existing network, or for overriding economic, political or strategic reasons, so that it is seldom necessary to resort to traffic and cost estimates of the kind so thoroughly developed by Professor Müller. Those, however, who happen to be concerned with, or interested in, such theoretical approach, will hardly find a better guide to the general theory of railway and road planning. There is also much useful information in those chapters which have a more immediate practical appeal.

The two main chapters specifically dealing with railway planning fill the whole first half of the book. The first of them outlines the "theoretical background," including the fundamental economic prerequisites, the technical data on the permanent way, the vehicles, and their dynamic characteristics, a detailed method to assess the actual cost of carrying a unit load over a given line, a further method to determine the most economic ruling gradient to be aimed at under given circumstances, etc. The second chapter turns to the more practical propositions of actual technical planning and is thus more in line with the conventional text books. In the third and fourth chapters, a similar dualistic approach is made to the subject of road planning. The two last chapters deal with the engineering aspects of soil, earth movements and earthworks for railways and roads.

Belgium and Luxembourg—Guide and Quiz. By C. A. Thompson. Ilford, Essex: Belux Publications, 44, Suffolk Road. 7½ in. × 5 in. 98 pp. Paper covers. Price 3s.—The descriptive matter is in four sections dealing with the Belgian Coast, the "art cities," the Ardennes, and the Grand Duchy of Luxembourg; a short description is given of each city, resort, or locality, with notes on some Ardennes valleys. "Art cities" include not only Brussels, Antwerp, Bruges, etc., but also ancient cities such as Courtrai, Mons, and Tournai, so well worth visiting, but little known to British travellers. Much useful travel and general information is imparted in a "quiz." Welcome features are a calendar of religious and traditional festivals, and a list of the French and Flemish names for principal Belgian towns; the latter has become necessary through increased use of Flemish in public notices and timetables.

The Principles and Practice of Prestressed Concrete. By P. W. Abeles. London: Crosby Lockwood & Son, Ltd., 39, Thurloe Street, S.W.7. 10 in. × 7½ in. 109 pp. Illustrated. Price 15s.—This treatise, which deals mainly with pre-stressed concrete beams, is based on a series of articles by the author which appeared in 1948 in *Civil Engineering*, and is largely the result of some years' extensive research into the co-operation of high-strength materials involving high tensile steel, as well as spun and vibrated concrete of exceptional strength, which proved how much stronger is the bond when bars of relatively small section are embedded in high-strength concrete than that obtained in ordinary reinforced concrete. The subject is treated exhaustively in twelve chapters which somewhat enlarge the scope of the original articles. There are a bibliography giving works in English, French, and German, diagrams and photographic illustrations, and —a small but useful point—a summary of notations in duplicate, one copy loose for easy reference when reading. The author acknowledges a debt to the Civil Engineer, Eastern Region, British Railways, in whose department he has worked; Mr. R. E. Sadler, Assistant to the Civil Engineer (Construction), contributes a preface.

Tool Steels.—Samuel Osborn & Co. Ltd., Clyde Steel Works, Sheffield, has issued a 24-page booklet giving detailed instructions for the correct heat-treatment of tool and die steels. The booklet also contains a list of the different steels recommended as being most suitable for specific operations. A new catalogue now being prepared will be issued shortly.

Nickel—Properties and Applications.—An illustrated 18-page brochure, a further publication in the series dealing with the properties and applications of alloys, has been issued by Henry Wiggin & Co. Ltd., Birmingham, 16. The brochure includes tables showing the physical constants and mechanical properties of nickel, together with information on its anti-corrosion qualities and many uses, and gives some typical illustrations of applications of nickel in various fields of industry.

P-G-P Treadplate.—The British Aluminium Co. Ltd. has issued an illustrated brochure describing its Positive-Grip-Pattern aluminium alloy treadplate. This has been specially developed to give a positive grip in any direction. It can be readily cleaned, is non-rusting and non-sparking (and therefore can be used in combustible atmospheres). Its main applications are in engine-room flooring, crane walk-ways, trench covers in power houses and similar marine and industrial settings, whilst its light weight is an advantage in rail and road vehicles.

Main-Line Electric Locomotives for Brazil

Fifteen 3,000-h.p., 3,000-volt d.c. locomotives designed by The English Electric Co. Ltd. for main-line operating between Moocha and Jundiahy on the former San Paulo Railway

IN September, 1946, the contract was signed between the San Paulo Railway Company and The English Electric Export & Trading Co. Ltd. for the electrification at 3,000 volts d.c. of the section of the railway between Moocha and Jundiahy. Subsequently the railway was taken over by the Brazilian Government, and is now known as the Estrada de Ferro Santos a Jundiai (E.F.S.J.).

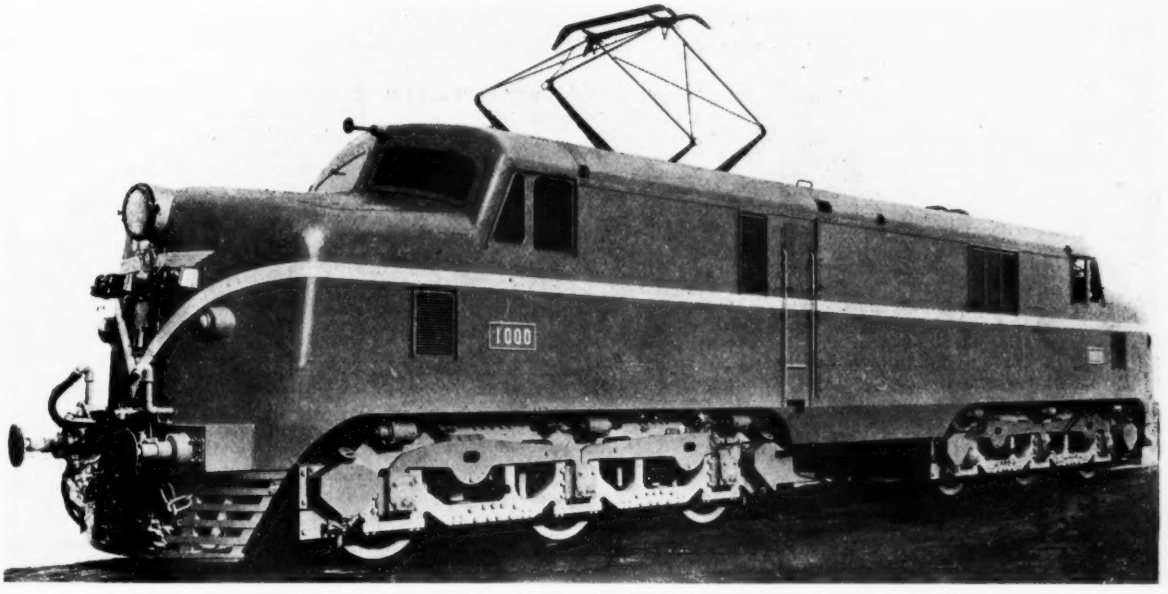
The route-length of main line to be electrified is approximately 64 km. (39·76 miles) of 5-ft. 3-in. gauge double track, including sections with gradients up to 2·5 per cent. This part of the main line forms the principal railway route to the port of Santos and has a high traffic density, particularly with regard to freight, which comprises approximately 65 per cent. of the total traffic passing over the line. It is expected that the greatly increased speed and availability of the electric stock will enable the traffic density towards Santos to be increased by approximately 40 per cent., *i.e.*, to about 21,000 trailing tons per day. The importance of the electrification to the economy of the railway in particular has been considerably increased in view of the cost of importing coal for fuel for steam locomotives and the fact that hydro-electric power can be generated easily and cheaply in Brazil.

Because of the general conditions prevailing on the railway which involves short hauls, and considering the complexity of handling large trains in shunting yards, the maximum size of freight trains will be limited to 600 tons. A single locomotive is capable of hauling a load of this weight on the level at the maximum permissible speed of 45 m.p.h. and 20 m.p.h. on a gradient of 2·5 per cent. Passenger trains will vary between 300 and 700 tons. The latter are through trains from the Paulista Railway and will require double heading. Express trains of 500 tons can be hauled on the level at 60 m.p.h. and at 35 m.p.h. on a gradient of 2·5 per cent.

The locomotives are designed for multiple-unit operation to deal with heavier trains which are expected to be operated. Using regenerative braking, a 600-ton freight train can be held down to a speed of approximately 20 m.p.h. on a 2·5 per cent. gradient.

General Description

The locomotive superstructure is streamline with a cab mounted at the rear of each nose-end compartment. Within the superstructure, between the cabs, the equipment is symmetrically



The "English Electric" 3,000-h.p., 3,000-volt electric locomotive for Brazil

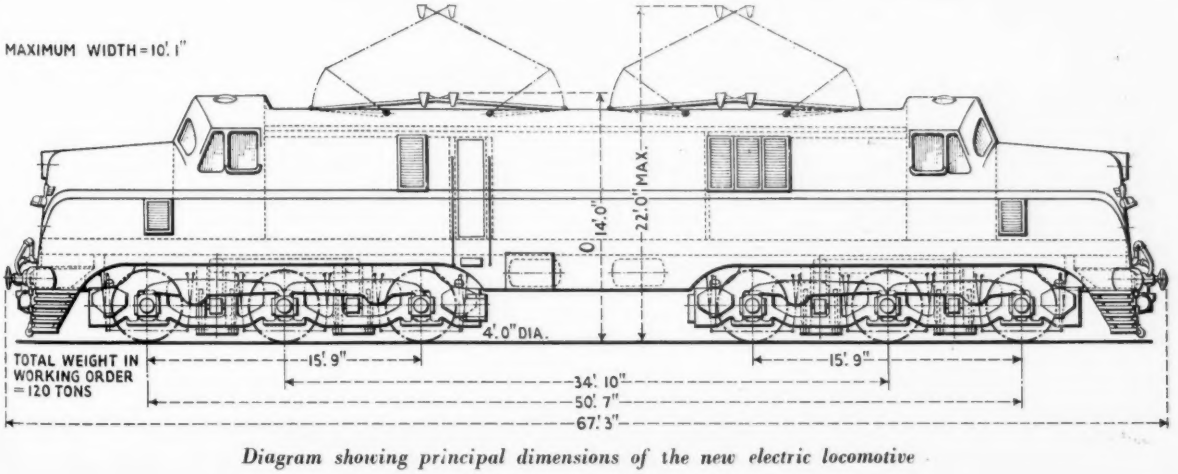


Diagram showing principal dimensions of the new electric locomotive

mounted, commencing with a large-output M.G. blower set at each end, followed by four cubicles containing the line-breakers, resistance contactors, relays, and other electrical equipment mounted in pairs behind each of the M.G. sets, with the main starting resistance mounted on two separate frameworks in the middle of the locomotive between the control gear cubicles.

The H.T. equipment is mounted in separate compartments with interlocked doors, opened by the removable reverser key of the master controller. Immediately a door is opened an air valve is operated, lowering the pantograph and providing immediate and complete insulation and protection.

The cabs have two long front windows with one fixed and one drop window at each side. Indicator lights to show the transition from one motor grouping to another, overload relay operation, and light signal indication for use by the driver during M.U. operation are provided. A speedometer is fitted in one cab and a speedometer and recorder in the other. In each nose-end compartment is housed a motor-driven exhauster and compressor, and in one compartment are mounted in addition the battery, and in the other the regenerative exciter.

Constructional Details

The underframe, which is welded, comprises four main 10 in. by 3 in. longitudinal channels, well braced transversely; the buffer beams and drag boxes are of fabricated steel construction and riveted to the underframe. Standard buffers, together with hook and drop head coupler, are fitted, and NY-11-F type friction draw-gear is being provided and fitted by the railway. The superstructure consists of channel members welded together, and incorporates the starting resistance frameworks, one at each side of the locomotive, the whole forming a body frame of girder construction; the framework is welded to the underframe, and is panelled in steel sheets, the joints being continuously welded. The roof is removable, in halves, to facilitate the withdrawal of equipment, and the louvres and air outlets mounted in the roof are designed to prevent the ingress of water.

To facilitate the operation of the roof isolators and to allow access to the roof, a folding ladder is provided adjacent to one of the doors. Immediately this ladder is moved an air valve in the air circuit of the pantographs is operated, causing the latter to descend.

Bogie Details

The weight of the locomotive superstructure is transferred to each bogie through a cast-steel centre bolster resting on four nests of elliptical bearing springs carried on spring planks of fabricated steel construction, which in turn are carried by forged steel swing links from the main frame cross-stretchers, and thus to the bogie frame. The main cross-stretchers between the wheels carry the removable motor nose suspension brackets of the three traction motors. A bogie centre is provided on the centre bolster to engage with a cast-steel bogie centre on the locomotive underframe; manganese-steel liners are fitted on the rubbing faces between the superstructure and bogie, and inside the centre recess at the thrust faces; a rubber sealing ring is used to prevent the ingress of dust to the wearing surfaces. The driving thrust from the bogie to the locomotive underframe is transferred through thrust pads on the frame cross-ties to hard steel liners on the centre bolster and thence through the bogie centre to the underframe.

The transference of the weight of the superstructure from the bogie frames to the axleboxes is by way of four nests of helical springs carried on compensating beams of rolled steel, the ends of which are located in hard-steel pads resting on top of the axleboxes. The location of the helical springs on the compensating beams is such as to equalise the weight on each axle. Timken roller bearing axleboxes are fitted in manganese-steel horn guides. Each wheel of the bogie is braked, by an 8 in. by 8 in. air brake cylinder operated through brake rigging. Electro-pneumatic sanding gear, operated from a foot pedal in each cab, is provided for the outer wheels of the bogies.

The standard 14-EL air-brake equipment is used; the air, vacuum, and regenerative brakes are interlocked in such a way that, in the event of an emergency application, the latter is automatically cut out. Hand brakes are also provided in each cab.

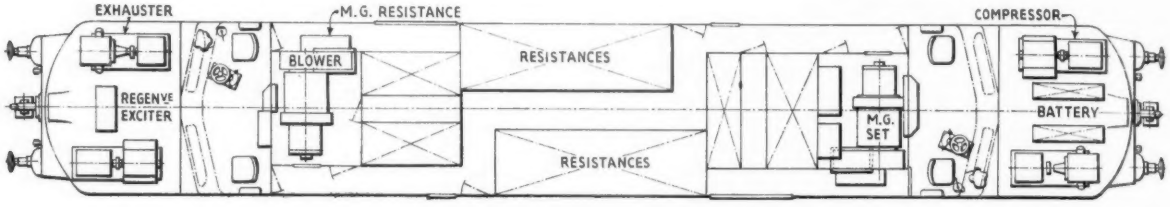
Electrical Equipment

The control of the locomotive for both motoring and regenerating is centred in the single master controller mounted in each cab. The controller frame is of cast aluminium-alloy and is fitted with a main control hand-wheel and three hand levers; the hand-wheel controls the locomotive speed and the motor groupings—a total of 35 notches is provided. The reverser handle is fitted on the controller with three positions—"reverse," "off," and "forward." In addition, the selection of the field weakening notches in series and series-parallel is carried out by operating this lever. The second hand lever operates the power-brake changeover switch and selects the motor grouping during regenerative braking; 18 notches total are provided. The hand-wheel and levers are interlocked mechanically. Electro-pneumatic unit type contactors and line breakers are fitted; the latter are arranged for high-speed operation in conjunction with overload relays. Electro-magnetic contactors are used for the auxiliary circuits.

The selection of the three motor groupings, the transition from motoring to braking, and the field control of the traction motors are carried out by electro-pneumatic cam-type group switches, and the reversers are of the same general type. The contactors, line-breakers, group switches, reversers, overload and other relays, H.T. auxiliary fuses, main and auxiliary isolators, are grouped together conveniently on four frames of angle-iron construction, and the frames are totally enclosed where necessary to exclude dust. Three motor groupings are provided—series, series-parallel, and parallel—two traction motors being connected in permanent series throughout. A total of nine running notches are provided in series, ten in series-parallel, and seven in parallel. Motor cut-out switches are fitted to enable three traction motors to be cut out in the event of motor failure. Two double-pan pantographs are fitted per locomotive, and can operate to height above rail of 22 ft. and 17 ft. 6 in. respectively.

Regenerative braking is provided by four traction motors using two groupings, *i.e.*, series and parallel. The series fields of these machines are separately excited from the fifth traction motor, the sixth running idle. The field of the fifth machine is, in turn, excited from the small variable voltage regenerator exciter. This arrangement gives the resultant excitation to the traction motors proportional to speed, and the regenerative scheme embodies the well-known stabilising resistance method of control. The traction motors are of the

(Continued on page 543)



Elevation showing the distribution of electrical machinery

The San Paulo main line, showing section where electrification is in progress: also connecting railways

South African Railways "3E" Class Electric Locomotives—2*

New and more powerful motors were developed specially for these locomotives from an earlier design with a long record of service

METROPOLITAN-VICKERS first built traction motors for the South African Railways in 1924, when the "MV.182" motor was developed specially for the first electric locomotives to be put into service in South Africa. With repeat orders, a total of 800 motors was supplied over a period of twenty years; and while detail improvements, such as a change from sleeve to roller armature bearings, were introduced from time to time, the motor as a whole proved so suitable for the service that the basic design persisted unaltered up to recent years.

With the development of the South African Railways, the need arose for more powerful electric locomotives and the "MV. 187" motor, therefore, was developed for the 28 "3E" class locomotives ordered in 1944. A 1-hr. rating of approximately 450 h.p. was required to meet the specification, and with the limitations set by the relatively narrow 3-ft. 6-in. gauge, 48-in. wheel, and creepage lengths required for 3,000 volts, great care was necessary in the design to make full use of the space between wheel flanges and obtain as long an active core length as possible. While making full use of the satisfactory service record of the "MV.182" motor, various modern features developed since that motor was designed were incorporated in the new motor. Among them, a wide range of field control and a large speed range have been provided.

Forced ventilation has been adopted, two blowers providing 2,500 cu. ft. of air per min. to each of the six motors on the locomotive. With this air volume the ratings to B.S.S. 173, 1941, are:—

1-hour: full field 250 amp., 1,450 V., 450 h.p., 630 r.p.m.
Continuous: full field 210 amp., 1,450 V., 382 h.p., 680 r.p.m.

armature and the other over the surface of the armature and past the field coils. Both streams leave through the pinion end of the motor.

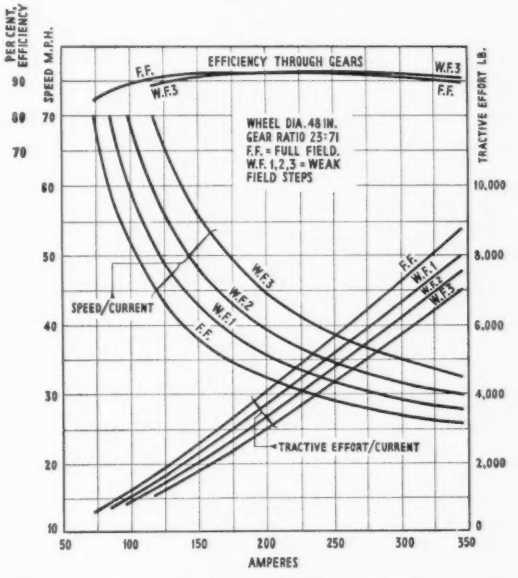
Field control is obtained by shunting the series field with an inductive shunt and non-inductive resistance, the value of the latter being varied to obtain the various field strengths required.

The motors are supported in the bogies by axle suspension. Torque is transmitted to each axle through a patented type of resilient gear with straight spur teeth, the resilience existing between arms on the hub and the rim of the gearwheel through the medium of rubber bushes. This torsional resilience is of great benefit in reducing impact forces on the motor armature, in addition to improving the life of the gears.

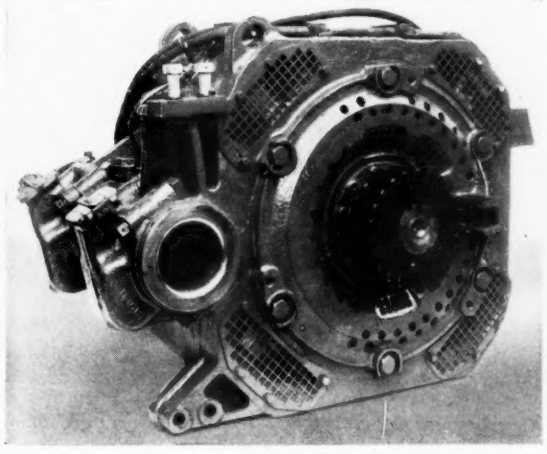
Oil lubrication is used for the gears, which are housed in a fabricated sheet steel case consisting of upper and lower halves bolted together at the machined surfaces of the joint and suitably supported from the motor frame.

The armature runs on roller bearings mounted in cast steel housings. The housings are provided with long spigots near the outer diameter and are an interference fit in the ends of the frame, into which they are pressed. In addition, from, or the entry of undesirable matter into, the armature bearings is prevented by labyrinth seals. The permanent lips on each bearing are on the outer races, so that on removal of the armature from the frame and housings, the rollers and cages remain in the outer race and on the housings. Thus the rollers and cages continue to be protected and are less likely to be damaged by blows or dirt.

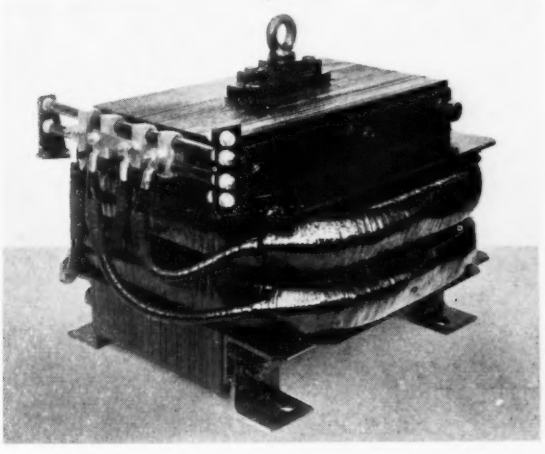
In addition to the labyrinth seals, the commutator end bearing is safeguarded by a thrower on the armature shaft. The thrower co-operates with an annular channel in the inner face of the housing. If grease reaches this channel, it is drained away to the outside through a cored channel in the housing, the outer



Performance curves of "MV.187" motor at 1,450V.



Driving end of "MV.187" 450-h.p. traction motor



Inductive shunt for field diverter circuit

The total weight of the motor, including gears and gearcase, is 10,200 lb. Cooling air enters the motor at the commutator end and thence flows in two parallel streams, one through axial ducts in the large bolts hold each housing in the frame. The armature is located by its commutator end bearing, which is of the double-lip type. A detachable lip on the inner race permits removal of the armature from the commutator end housing and frame. Escape of grease end of which is protected by a spring-operated cover.

A greasing nipple is provided for the addition of grease to each armature bearing.

To minimise the possibility of current passing through the roller bearings, a brush

* Part 1 of this article appeared in our issue of October 7

of low contact resistance is carried in a brush box mounted on the yoke above the axle, and bears on the axle to provide a direct path to the earthing point on the frame.

In order that a damaged armature shaft may be replaced without disturbing the armature windings, the armature is mounted on a cast steel combined end plate and spider. Torque is transmitted from the spider to the shaft by an interference fit. The armature punchings are also an interference fit on the spider, but a key is used to locate them correctly with each other, with the commutator bars, and with the end plates. A cast steel combined end plate and commutator bush is used to eliminate joints, and so reduce the possibility of brake shoe dust or moisture penetrating from the axial ventilating passages through the armature to the armature windings between the commutator and armature punchings. To prevent a similar leakage between the endplates and the ends of the armature core, each end punching is spun over into a groove in the periphery of the adjacent endplate. Special steps are taken also to provide a very tight core and prevent dust getting between the core punchings.

The armature teeth have the same width at the tip as at the root, which is achieved by using a taper-section slot. The copper strip from which the conductors are formed is also tapered in section so as to fit correctly in the slots after being insulated. This construction has several advantages over the normal parallel-sided slot, among which may be mentioned a more economic use of the armature core space, better commutation, reduced copper eddy losses, and easier winding.

The insulation is Class "B," the armature coil insulation being largely Micanite with an outside taping of glass. The slot portions of the coils are Bakelised. The coils are held in position by steel bands, those on the core being enclosed in serrated metal strips.

The brush gear pressure mechanism is designed for minimum inertia, consisting simply of a concentrically-coiled spring carrying a brazed-on copper tip which presses on the top of the brush. Also brazed to the tip is a finger loop and a copper flexible. The other end of the flexible is soldered to the body of the box to give a low-resistance path from the brush to the box by short-circuiting the spring. The pressure exerted on each brush can be varied by adjusting the angular position of the spring spindle and locking it in the required position with a split pin.

The brush holder is bolted to an insulated supporting arm by two studs in the support. The joint between the holder and its support consists of faces normal to the commutator face, both covered with serrations parallel to the commutator surface. Thus, when the holder is bolted to the support, the serrations on the two surfaces lock together to hold the brush box parallel to the commutator surface and also ensure that the brushes are normal to the commutator. This scheme permits of easy, rapid, and accurate adjustment of the box for any diameter of commutator within the required range.

A hold-off ledge for the pressure arms is provided on the box between the brushes (two brushes per box), so that brushes can be withdrawn and replaced with one hand.

The series and interpole coils are wound with copper strap. In the former the strap is wound on the flat and in the latter on edge. Class "B" insulation is used, the insulation between turns being asbestos and the insulation to earth Micanite with an outside taping of glass. In view of the lightning conditions prevailing in South Africa, special precautions have been taken with insulation of the interpole coils. Both series and interpole coils are vacuum-dried and pressure-

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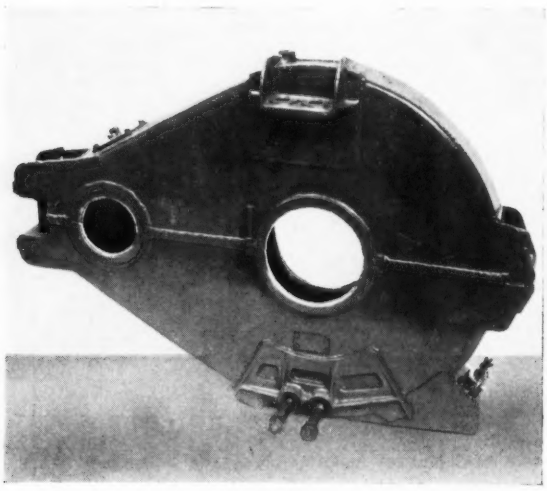
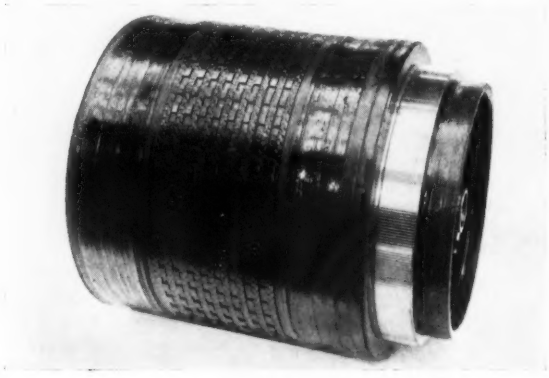
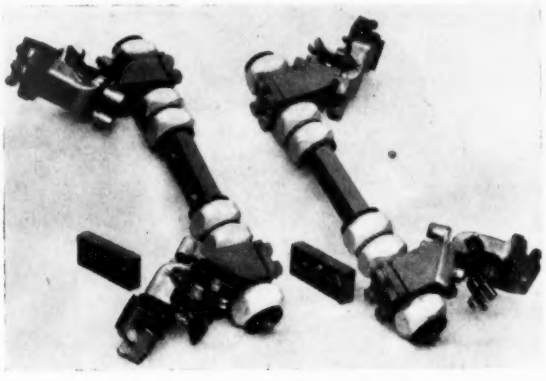


Gearcase, showing means of attachment to motor frame

Construction of torsionally resilient gearwheel



Armature of "MV.187" motor



Brushgear, showing adjustable holders and pressure arms

Plain Horizontal Milling Machine

Design based on prolonged tests of Ardoloy cutters

THE new Edgwick No. 2 Carbimil plain horizontal milling machine, developed and produced by Alfred Herbert Limited, Coventry, has been designed to give high rates of production on repetition work, using either negative rake carbide or high-speed steel cutters. This machine, which has all the equipment necessary for obtaining accurate data, is the result of many years of extensive testing of carbide cutters, and incorporates all the features that these tests have shown to be necessary.

Transmission of the drive to the spindle is by vee ropes and a train of hardened and ground nickel-chrome gears for a two-speed motor developing 15 h.p. at 3,000 r.p.m. and 5 h.p. at 1,000 r.p.m. The motor is located at the rear of the machine, mounted on an adjustable platform which enables the correct tension on the vee ropes to be maintained, and an ammeter is provided with graduations in red to indicate when the motor is being overloaded, *i.e.*, when the cutters require regrinding or when the depth of cut and feed are too great.

When high-speed steel cutters are to be used, the motor is switched on to its low speed (5 h.p. 1,000 r.p.m.), and the following speeds and feeds are then available:—

Speeds: 43-60, 85, 120, 160, 225, 325 r.p.m.

Feeds: 1-1⅛, 2, 2¼, 3⅛, 5¼, 7⅞, 10½ in. per min.

For milling with negative-rake carbide cutters, 15 h.p. is available, and the corresponding ranges are:—

Speeds: 130, 180, 260, 365, 485, 680, 990 r.p.m

Feeds: 3¼, 4½, 6¼, 8⅝, 11¾, 15¾, 23, 30¾ in. per min.

Two large flywheels are permanently secured to the main spindle. They damp down vibrations and are of special value with carbide cutters at high speeds. The drive to the feed mechanism is so arranged that, when the load reaches a predetermined value, the feed is automatically disengaged, thereby preventing damage to the cutters, a feature of great value when carbide cutters are being used.

A quick-power traverse of 300 in. per min. for the longitudinal motion of the table is provided in both directions. This is driven by an independent motor and interlocked so that the loading and unloading of fixtures can be arranged in the best position.

When the machine is being set up, longitudinal motion to the table is imparted by means of the detachable work handle, which is interlocked with both feed and quick-power traverse mechanisms. This interlock prevents either motion being engaged while the hand traversing crank is in use.

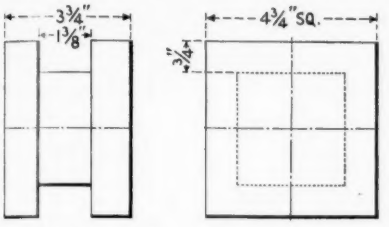
All movements to the knee and saddle are effected by a detachable work handle, and micrometer dials are provided for fine adjustment. A pump circulates oil to all gears and bearings inside the column and "one-shot" pressure lubrication is provided for the table mechanism.

Principal Dimensions

Main dimensions and capacity of the machine are as follow:—

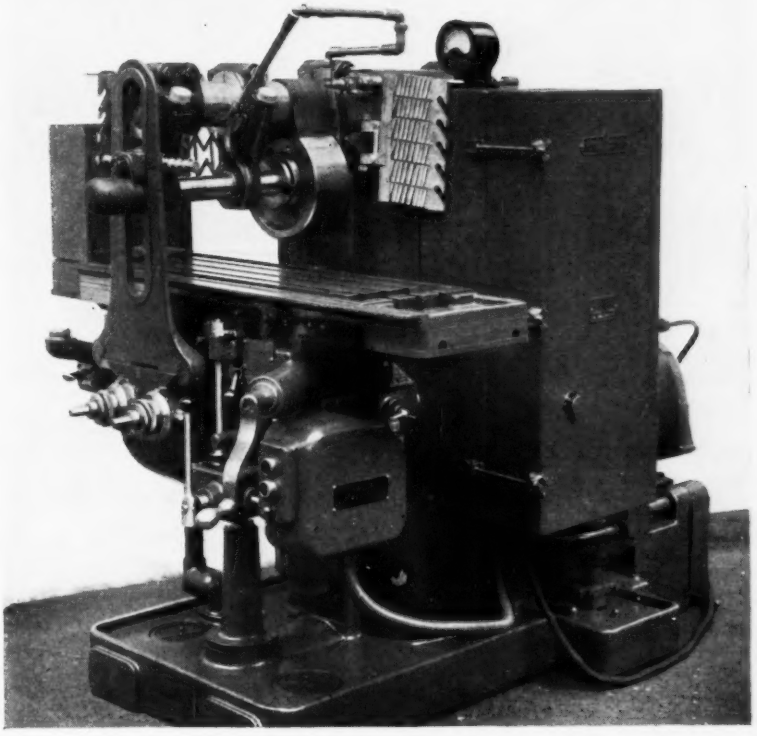
Longitudinal feed (automatic)	20 in.
Maximum distance from spindle centre to table...	12 in.
Minimum distance from spindle centre to table...	5 in.
Diameter of overarm	3¾ in.
Working surface of table	37 in. × 12 in.

The machine is provided with all electrical equipment suitable for 380/420 volts, 3-phase, 50 cycles a.c.



Milling tool slots in capstan lathe turrets

Material: 4 per cent. carbon steel; cutting speed, 450 ft. per min.; feed, 11¼ in. per min.; cutters, two Ardoloy-tipped slotting cutters, interlocked and staggered, 10 deg. negative radial rake; floor-to-floor time, 3 min. (four slots).



Edgwick No. 2 Carbimil

South African Railways "3E" Class Electric Locomotives

(*Continued from page* 534)

impregnated, and are given a tough, glossy finishing coat of enamel. Powerful springs are fixed behind all field coils so that they will remain tightly clamped between the tips of the poles and the yoke in the event of shrinkage of the insulation after long service.

All cables inside the motor are tightly lashed to staples or coils to prevent the movement and chafing which otherwise would take place as a result of the vibration to which the motor is subjected in service.

The interpoles, like the main poles, are built up from laminated sheet steel in order to reduce the damping of the change of interpole flux when line surges occur.

Also, to ensure the best commutation during surges, a high ratio of interpole to armature turns is used.

As there is relative movement between the air ducting on the locomotive and the motors, connection is effected by flexible concertina leather ducts, which are attached to the motor on the nose-suspension side to reduce their movement when rounding curves. This position of attachment also causes the least interference with access to the brush gear and commutator, which is obtained from the axle side through openings above and below the commutator. These openings are normally closed by means of bolted covers.

Axle-hung traction motors provide a simple drive with few parts requiring maintenance, but, in view of the impacts received in service, they must be of rugged construction, and special care is necessary both in design and manufacture if satisfactory service is to be obtained. The "MV.187" motor has been based on long traction experience, and it is believed that it will give many years of satisfactory service.

(*To be continued*)

Modernised Pullman Kitchen Car "Malaga"

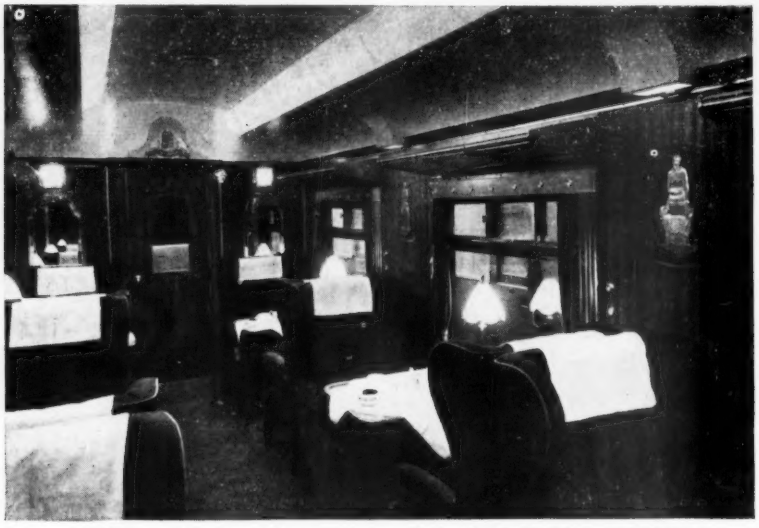
Twenty-eight-year-old car with completely remodelled interior incorporating novel features

THE Pullman Car Company, in co-operation with the Southern Region, will shortly put a modernised Pullman into service on the "Golden Arrow." The car is *Malaga*, a twelve-wheel first class vehicle built in 1921 for the London-Dover boat trains of the S.E.C.R.

Although the interior has been entirely re-designed and has new features, the style for which Pullmans are so well known has been kept. The original wooden panelling and inlays have been replaced by anodised aluminium, giving a bright copper finish, and by Australian walnut veneer, wax finished, on ¼-in. aluminium sheeting. This use of a wood veneer on aluminium sheet is an experiment, to overcome the cracking liable to occur with plywood-backed veneers.

Hand-carved anodised aluminium plaques, of figures symbolising Plenty, form a decorative motif on the sides of the saloon and of the coupé compartment. The metal fittings and mouldings are also in anodised aluminium, with an off-copper finish. Bevelled mirrors, peach-tinted and framed to tone with the general scheme have been fitted.

Hand-carved plaque

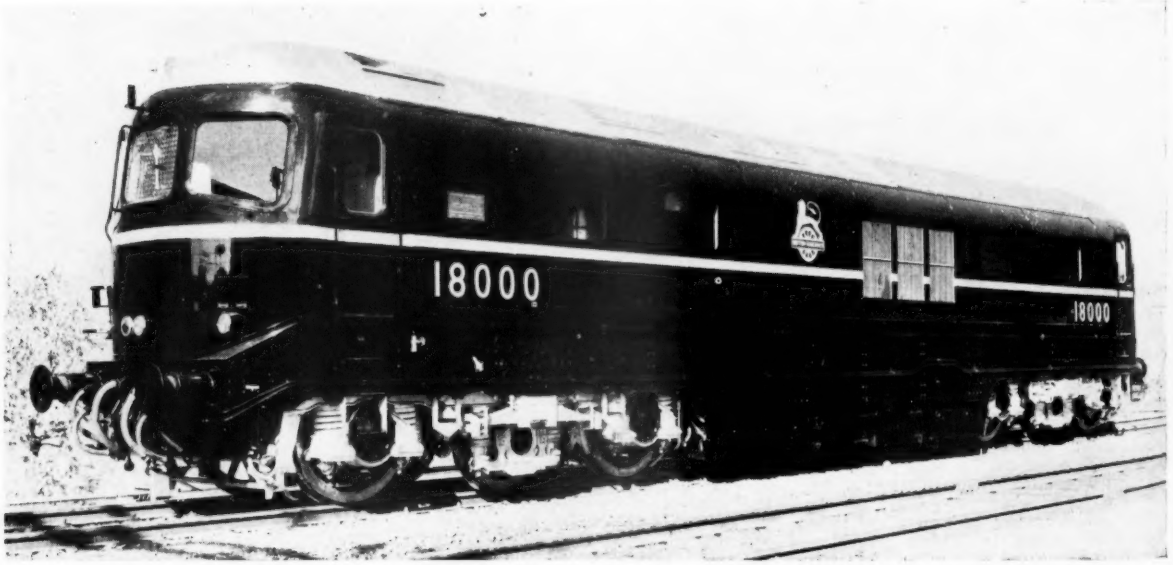


Saloon, showing walnut veneer and anodised aluminium fittings

Although only 15-watt bulbs are used the illumination is an improvement on the usual. This has been achieved by shaping the ceiling as a shallow clerestory with lighting troughs in clear plastic prisms. This provides maximum light penetration with a diffused effect and prevents high spots of light coming from the bulbs.

The upholstery is in brown cord with green headcloths and curtains. The decoration has been designed under the direction of Mr. G. H. Friese-Greene, Managing Director of J. Starkie Gardner Limited, in collaboration with the British Aluminium Company.

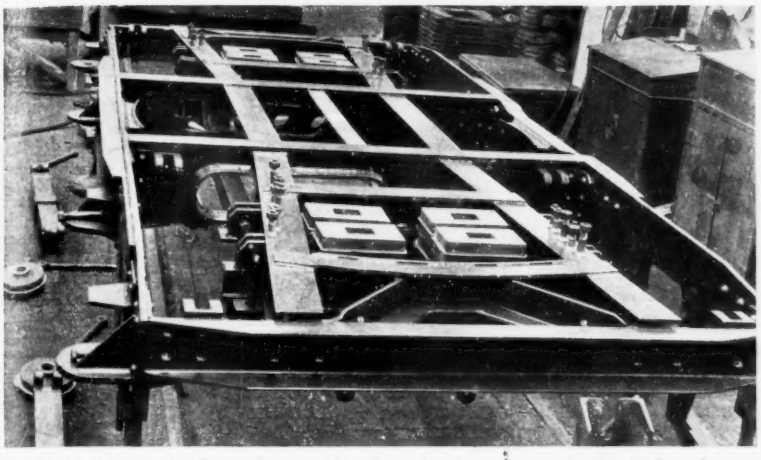
First Gas Turbine Locomotive for British Railways



Gas turbine-electric locomotive developing 2,500 h.p. built by Brown-Boveri, Baden, and the Swiss Locomotive Company, for the Western Region, British Railways (see articles in our January 14 and March 11 issues)

Double-Deck Electric Four-Coach Units

Southern Region experimental four-coach train for the Charing Cross - Dartford section



Bolsterless trailer bogie for new Southern Region electric double-deck trains

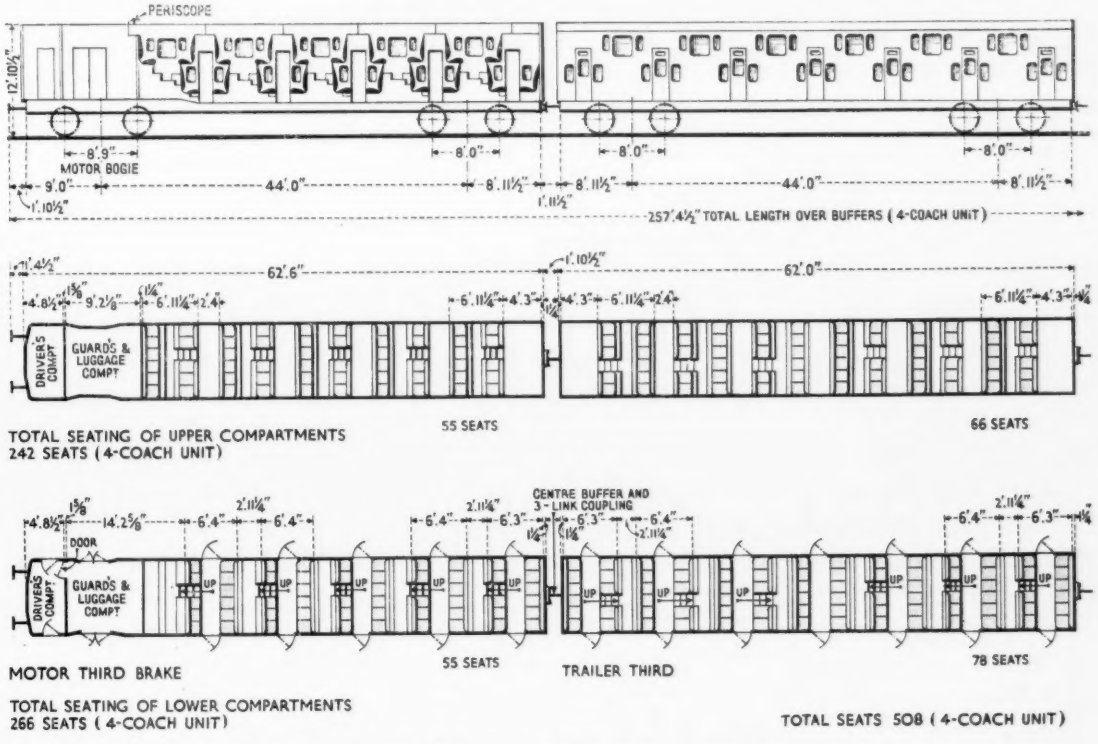
THE double-deck four-coach train for use on the Charing Cross-Dartford section of the Southern Region, British Railways, reference to which was made in our issue of March 4 last, has been completed, and was put into service on November 2. The train was built at the Lancing and Eastleigh works of the Southern Region to the design of Mr. O. V. Bulleid, former Chief Mechanical Engineer, Southern Region. The bodies are of light weight all-steel construction to designs based on recent Southern Region suburban electric stock. The lower floors are of laminated plywood, ¼ in. thick between the seats, and ⅜ in. thick elsewhere. The inner structure for the upper compartments is built of Alpax aluminium castings, aluminium plate, and sections made from cold rolled strip steel. Plywood bent to seat form is used for the upper and lower seats, which are upholstered with spring cushions and seat back squabs.

Clear spaces under the seats in the lower compartments provide accommodation for heavy luggage and racks for light parcels are fitted in each compartment. In the upper compartments luggage spaces are situated above and behind the passengers. For lighting, 70-volt tubular opalescent lamps are mounted on the plywood seat partitions above the heads of passengers. Because of the loading gauge and dimensions of bridges and tunnels, the windows in the upper deck cannot be opened, but pressure ventilation has been provided.

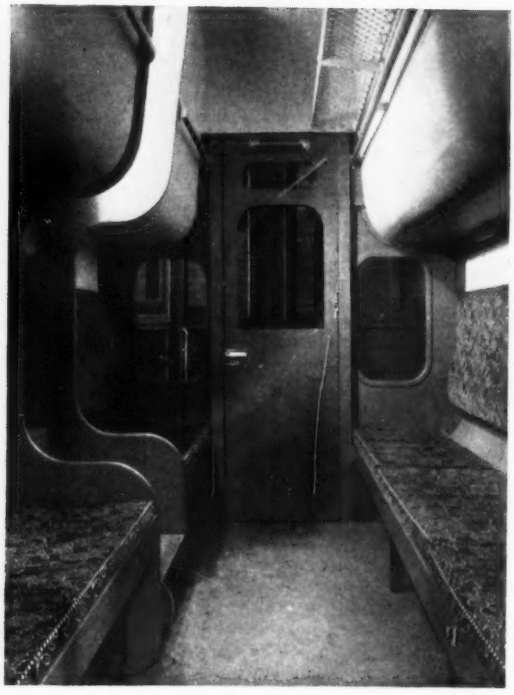
The fans are contained in each of the plenum chambers situated below the upper compartments and draw supplies of fresh air from the underside of the vehicle. Electric radiators for heating the compartments are also contained in these chambers, making it possible to provide, under control of the guard, an efficient distribution of freshened warm air in winter, and in summer, air is taken from the shadier portion of the vehicle. A rotary thermometer is situated in the guard's compartment which indicates to the guard how he should use the ventilating and heating systems.

The underframes, which are trussed, are of rolled-steel sections electrically welded to reduce weight and enhance the strength of the structure. The buffing and drawgear between the vehicles is of usual type, *i.e.*, the simple self-contained buffer with 3-link wagon drawgear connections—the leading ends of the units being fitted with heavy duty self-contained buffers and screw couplings.

The bogies, motor, and trailer have been designed to suit the new conditions brought about by the introduction of wheels of smaller diameter than usually used for ordinary electric stock. The motor bogies generally conform to those used for suburban electric service, each bogie carrying



Seating plan of half a four-coach unit of the new British Railways two-level stock. Two units compose a standard train seating 1,104 passengers



Lower-deck compartment showing (left) entrance to upper deck

two traction motors. The bogies are situated at each end of the unit and the motors are of the lightweight type recently used by the Southern Region for this class of stock. The motors have an output of 180/300 h.p. maximum. Bolsterless trailer bogies have been used, incorporating in the construction laminated springs mounted on the axle boxes, and steel helical springs with auxiliary rubbers, thus maintaining the high standard of springing of the swing bolster bogies.

The absence of the swing bolsters called for the weight of the body and underframe to be borne by the bogie main frames. For this purpose each bogie is made up of four radial segments. Two of these are placed on the longitudinal axis of the bogie and have a mean diameter equal to that of the bogie wheel base. The two other segments are placed on the transverse axis of the bogie and concentric with the longitudinal segments. The diameter of the transverse segments is approximately the width between the bogie soleplate.

The longitudinal segments take the weight and the draught of the bogies, and the transverse segments take the lateral thrust arising from the passage of the wheels of the bogie over the rails. Each of the bearings for weight, draught and thrust are faced with Mintex, a fabricated woven material of low frictional value, thereby completely eliminating metal contact between the bogies and the underframes. The longitudinal segments rest on adjustable members forming part of the bogie frames, and on these members are mounted rubber columns, in pairs, which support the bottom plate of the segmental bearings.

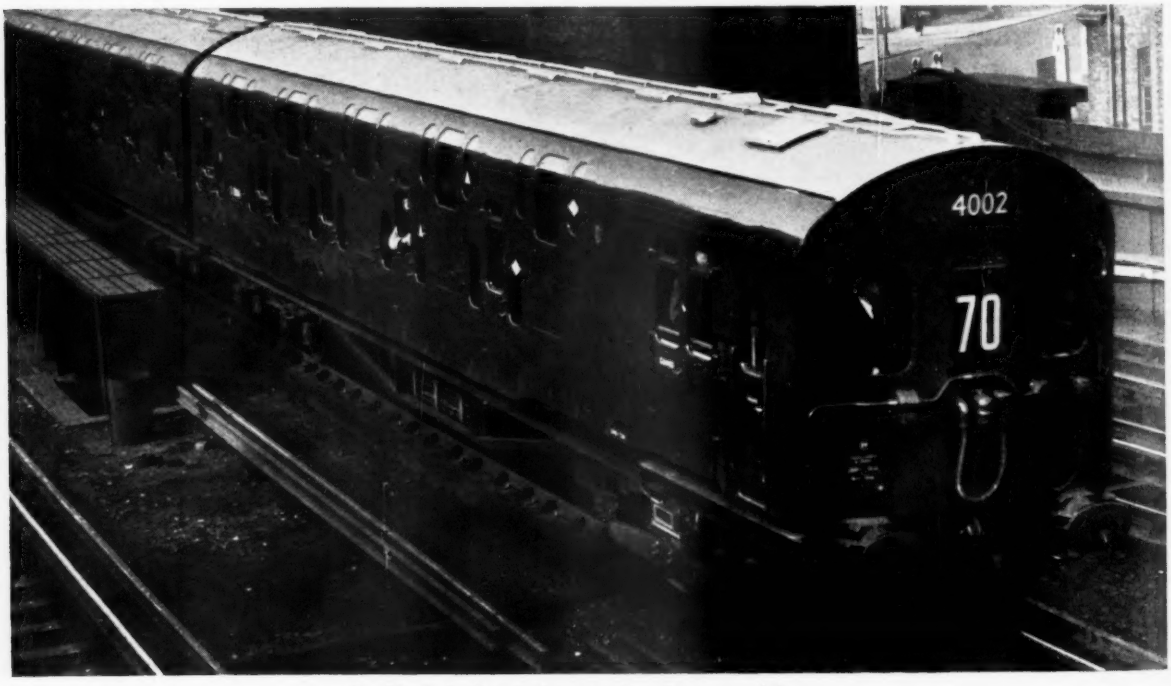
On the underframe are similar plates, to which are attached the fabricated woven pads. When the bogies traverse curves, these pads pass over the bottom segmental plates. Keeping in view the necessity for weight reduction wherever possible, the double-deck stock has been equipped with fabricated light-steel axleboxes instead of axleboxes of the heavy cast iron type. For the first time, a number of wheels of these two units have been fabricated by electric welding. The discs are of mild steel, and are of the B.F.B. corrugated type, being welded directly to the axles, and the tyres are in turn welded to the discs. This is an innovation in design and manufacture which will be watched with interest, as by such means there has been a useful saving in weight compared with wheels of usual type.

The table below gives the comparative dimensions of a normal 4-car unit and a 4-car double deck unit:—

	Normal 4-car set of latest design	4-car set double-deck stock
Overall length	257 ft. 4½ in.	257 ft. 4⅛ in.
Height from rail to roof ...	12 ft. 4½ in.	12 ft. 9 in.
Height from rail to floor...	4 ft. 2⅜ in.	3 ft. 8⅛ in.
Height from floor to roof...	8 ft. 2⅛ in.	9 ft. 0⅛ in.
Number of seats (normal)	386	508
Occasional tip-up seats ...	Nil	44
Weight of motor coach (as plated) (lightweight motors)	39 tons	39 tons
Weight of trailer coach (as plated) (lightweight motors)	28 tons	28 tons
Total tare weight ...	134 tons	134 tons
Tare weight per passenger (based on normal seating)	0·347 tons	0·264 tons
Percentage of total weight of unit and normal passenger load to normal load capacity of 4 motors (42 tons each)	95 per cent.	100 per cent.

Each trailer bogie carries a Westinghouse brake cylinder and an automatic slack adjuster operating directly the bogie brake rigging. This arrangement overcame the difficulties presented in coupling up the rigging to a foundation brake cylinder on

(*Continued on page* 544)



Double-deck electric four-coach units on a trial run

RAILWAY NEWS SECTION

PERSONAL

The Minister of Fuel & Power announced recently in the House of Commons that the following had accepted his invitation to serve as part-time Members of the National Coal Board:—Mr. J. H. Hambro, Sir Geoffrey Heyworth, Mr. Sidney Jones, Mr. Gavin Martin and Sir Godfrey Mitchell. He stated that Sir Robert Burrows had given up his appointment as a part-time Member of the Board because of the additional work involved in his position as Chairman of Remploy Limited. The Minister also announced that he had appointed Lord Hyndley to be Chairman of the Miners' Welfare Commission in succession to Sir Joseph Hallsworth.

We regret to record the death on October 23 of Mr. J. E. W. Boyes, sometime Assistant Chief Engineer, Egyptian State Railways.

Mr. David D. Walker, Joint Managing Director of Evershed & Vignoles Limited, has been elected a Vice-President of the British Engineers' Association.

The late Mr. William Redpath, formerly Managing Director of the Gloucester Railway Carriage & Wagon Co. Ltd., and at one time General Manager of the Leeds Forge Co. Ltd., left £2,748.

The Minister of Fuel & Power has appointed Mr. E. R. L. Fitzpayne, General Manager, Glasgow Corporation Transport Department, to be a member of the Oil Consumers' Council, in place of Mr. Vane Morland, who resigned from the council on his appointment as a Member of the Road Passenger Executive.

Mr. A. C. Fewtrell, Chief Civil Engineer, New South Wales Government Railways, has been awarded the Baker Gold Medal by the Institution of Civil Engineers for his paper entitled "The New Hawkesbury River Railway Bridge." Mr. Fewtrell is the first Australian to receive the Baker Gold Medal, which is awarded only once in every three years.

The late Mr. Charles Day, a Past-President of the Institution of Mechanical Engineers, left £69,834.

Mr. J. L. Salmon has been appointed Eastern Regional Editor of the *British Railways Magazine*, due for publication in January, 1950. Mr. Salmon entered the service of the Great Central Railway in 1913. In 1943 he became Southern Area Representative of the former *L.N.E.R. Magazine* in the Divisional General Manager's Office, and soon afterwards was promoted to the Press Relations Section, Chief General Manager's Office. From 1946 he covered the publishing and business management of the staff magazine in the Southern, N.E., and Scottish Areas, L.N.E.R.

Mr. V. A. M. Robertson, C.B.E., M.C., M.I.C.E., M.I.Mech.E., M.Inst.T., who has been elected President of the Institution of Civil Engineers for 1949-50, is Chief Civil Engineer, Southern Region, British Railways. He was President of the Permanent Way Institution for four years, including 1944, its Diamond Jubilee Year, and is a Vice-President of the Institute of Transport. Mr. Robertson was born in 1890, educated at Dover College and the Crystal Palace School of Practical Engineering, and was articled for three years from 1909 to a consulting engineer to the L.N.W.R. In 1912 he became an Assistant to the New Works Engineer, S.E.C.R. He joined the 14th London Regiment (London Scottish) in 1914, and a year later was gazetted to the Royal Engineers. After continuous service in France from the end of 1915 until May, 1919, he was demobilised with the rank of Major, having won the M.C. and Bar for carrying out bridgework under fire. In 1919 he rejoined the S.E.C.R., but in October of that year entered the service of the G.E.R., with which and the L.N.E.R. he remained until 1928, when he had held the position of Divisional Engineer (Southern Division) from 1921. He then became Civil Engineer to the Underground Railways, and retained that position on the formation of the L.P.T.B. In 1938 he was appointed Chief Engineer (Civil), and, in 1940, Engineer-in-Chief, which position he resigned, as from February 1, 1944, to take up the appointment of Chief Civil Engineer, Southern Railway. Mr. Robertson is a Member of the American Railway Engineering Association, an Associate of the Institution of Electrical Engineers, an Honorary Fellow of the Society of Engineers, and a Member of Council of the British Welding Research Association. He was made a C.B.E. (Civil) in the King's Birthday Honours, 1943, and holds the rank of Colonel in the Engineer & Railway Staff Corps, R.E. (T.A.). Mr. Robertson has served on a number of Government committees, and is the first railway engineer to be President of the Institution of Civil Engineers since 1929.

Mr. V. A. M. Robertson

President of the Institution of Civil Engineers for 1949-50

Mr. R. Howard has been appointed Chief Technical Engineer of the Railway Division, British Timken Limited.

Mr. Gavin Hamilton, General Manager, Lamp & Glass Works, of the British Thomson-Houston Co. Ltd., since 1933, has retired from that position but continues to be available for consultation. Mr. T. J. Dagley becomes General Manager of Glass Factories, and of Glass and Lamp-Component Sales; and Mr. S. R. Eade is appointed Manager, Lamp Factories.

Monsieur C. Pineau, who held the same post in the previous Government, has been appointed Minister of Transport & Public Works in the new French Cabinet.

Sir Roy Fedden has resigned from the board of Leyland Motors, Limited.

Mr. B. Hardy Smith, Assistant to Electrical Engineer (Power & Lighting), Eastern & North Eastern Regions, British Railways, has retired.

We regret to record the death on October 27 of Mr. Ernest Graham, O.B.E., who retired recently from the position of Mechanical Engineer (Railways), London Transport. A portrait and biography of Mr. Graham appeared in our issue of June 17 last.

Southern Region Appointments

The following appointments have been made in the Southern Region, British Railways:—

Mr. J. A. Rix to be Assistant (Works & Equipment), Chief Regional Office, *vice* Mr. N. E. Hedger, transferred to Railway Executive Headquarters.

Mr. R. A. Hamnett to be Divisional Engineer, Exeter.

Mr. Cesare Lucchini, General Manager (Engineering & Operating), Swiss Federal Railways, has been appointed to succeed Dr. W. Meile, on his forthcoming retirement, as President of the General Management, from January 1 next. As from the same date, Dr. H. Gschwind is appointed a General Manager; Dr. J. Favre is appointed Divisional Manager, 1st Division (Lausanne); and Mr. Werner Tribelhorn, Superintendent of Operation.

Mr. C. J. T. Eivers

Appointed Secretary for Railways, Western Australian Government Railways

Mr. W. McKie

Appointed Assistant Stores Officer, Scottish Region, British Railways

Mr. H. D. Poole

Appointed Rates Assistant to Commercial Superintendent, Western Region, British Railways

Mr. C. J. T. Eivers, Finance Officer, Secretary's Branch, Western Australian Government Railways, who, as recorded in our September 23 issue, has been appointed Secretary for Railways, has been Acting Secretary for Railways since December, 1948. Mr. Eivers was born in Western Australia on May 18, 1901, and entered the service of the Government Railways in 1916 as a junior clerk in the Chief Traffic Manager's Office. He was transferred to the Secretary's Branch in 1920, but returned to the Traffic Branch in 1926, where he served for a period in the office of the District Traffic Superintendent, Northam. He subsequently re-entered the Secretary's Branch, and gained experience in all phases of its activities, including the Industrial, Outdoor Inspection, Commercial, Assets and Finance Sections. In 1932 and 1935 he served as Secretary to a Parliamentary Select Committee and a Royal Commission, respectively, on the bulk handling of wheat in Western Australia.

Mr. A. I. Clifford, Head of the Freight Train Section, Operating Superintendent's Office, Western Region, British Railways, has retired.

Mr. J. T. Newborn has been appointed Joint Managing Director of Vi-Spring Products Limited, and Mr. L. A. Berry succeeds Mr. J. T. Newborn as Works Manager.

We regret to record the death, at the age of 73, of Mr. John Shaw, Managing Director of John Shaw & Sons (Salford) Ltd., and a Member of Council of the British Engineers' Association.

Mr. W. McKie, who, as recorded in our September 2 issue, has been appointed Assistant Stores Officer, Scottish Region, British Railways, was educated at Kilmarnock Academy, and joined the Glasgow & South Western Railway in 1913. During the 1914-18 war he served with the Royal Field Artillery, and on demobilisation returned to the service of the Glasgow & South Western Railway. Mr. McKie later became General Assistant to the Stores Superintendent, Northern Division, L.M.S.R., in which capacity he was largely responsible for the extensive re-organisation of the Stores Department in Scotland. He was subsequently appointed Divisional Storekeeper for the Northern Division of the L.M.S.R. at Glasgow.

Mr. G. R. Dalgleish, Assistant Divisional Storekeeper, St. Rollox, Scottish Region, British Railways, has been appointed Divisional Storekeeper, St. Rollox, Glasgow.

Mr. R. H. A. Burrell has been appointed Assistant Chief of Police, Eastern Area, British Railways. He has hitherto held a number of important police posts in India.

Sir Richard Pease has resigned from the board of the Brush Electrical Engineering Co. Ltd. Mr. P. C. Sharp, Secretary, Mr. A. H. Syme, Comptroller, and Mr. D. S. A. E. Jessop, Director of Personnel, have been appointed Directors.

Mr. A. W. Beckett, on return from leave, has been posted as Personnel Officer (Locomotive), Bengal-Nagpur Railway, with headquarters at Khargpur. As a result of his transfer from Calcutta, he has relinquished his positions as Manager & Publisher of the *Bengal-Nagpur Railway Magazine*, for the production of which he has been responsible for over 20 years; he has been succeeded as Manager & Publisher by Mr. Yudhister Raj, Secretary to the General Manager, B.-N.R.

Mr. H. D. Poole, who has been appointed Rates Assistant to the Commercial Superintendent, Western Region, British Railways, entered the service of the Brecon & Merthyr Railway in 1906 in the General Manager's Office at Newport, Monmouthshire. On the amalgamation of that railway with the Great Western Railway in 1922 he was attached to the then newly-created Cardiff Valleys District Goods Manager's Office. In 1923 Mr. Poole was transferred to the Assistant Goods Manager's Office at Paddington, and, after serving in various sections, became Head of that responsible for Railway Rates Tribunal matters, private siding rebates and other special subjects, in 1930. In 1935 he was made Supervisor of the rate-making sections, and in that capacity represented the company on several Railway Clearing House committees concerned with rates and kindred subjects. Five years later he was appointed Chief General Clerk, Rates Department, and in October, 1943, became Assistant. In the latter capacity he has been closely associated with the Committee of Goods Rates Assistants, and he is a member of the Irish & English Traffic Conference.

Mr. R. Weatherall, formerly Technical Sales Manager, has been appointed General Manager of the Wilton Row Extensions Limited.

Lt.-Colonel Sir Alan Mount

On Wednesday last a luncheon was held at the Royal Hotel, Paddington, at which Sir Charles Hambro, a former Chairman of the Great Western Railway Company, presided. It was attended by Sir James Milne, formerly General Manager and also a Director of the Great Western Railway Company, Mr. K. W. C. Grand, Chief Regional Officer, and a number of past and present Chief Officers. The guest was Lt.-Colonel Sir Alan Mount, who in July last retired from the position of Chief Inspecting Officer of Railways, Ministry of Transport, and is now Consultant on Safety Matters, Railway Executive. Sir Charles Hambro presented to Sir Alan Mount a silver salver inscribed: "Presented to Sir Alan Mount, C.B., C.B.E., R.E. (retd.), by his numerous friends on the Great Western Railway as a mark of their affection and esteem—July, 1949." Those present included:—

Mr. M. H. B. Gilmour, Chief Solicitor, British Transport Commission (and previously Solicitor, Western Region); and the following officers of the Western Region, British Railways: Messrs. C. R. Dashwood, Chief Accountant, A. S. Quartermaine, Chief Engineer, F. W. Hawksworth, Chief Mechanical Engineer, Gilbert Matthews, Operating Superintendent, C. Furber, Commercial Superintendent, R. Chitty, Solicitor, R. Burgoyne, Regional Staff Officer, A. W. Woodbridge, Signal & Telegraph Engineer, H. R. Webb, Stores Superintendent, F. C. Hockridge, Surveyor & Estate Agent, and Dr. C. T. Newnham, Medical Officer.

Area Bus Schemes

Second B.T.C. proposal

The proposals of the British Transport Commission for a second passenger road transport area scheme (briefly announced in our October 21 issue) differ from the first scheme, inasmuch as they do not affect the interests of any very large operator.

East Anglia Area

The East Anglia area envisaged comprises the whole of the territory served by the Eastern National Omnibus Co. Ltd., the Eastern Counties Omnibus Co. Ltd., the United Counties Omnibus Co. Ltd., and the Westcliff-on-Sea Motor Services Limited, together with the southern fringe of the territory served by the Lincolnshire Road Car Co. Ltd.

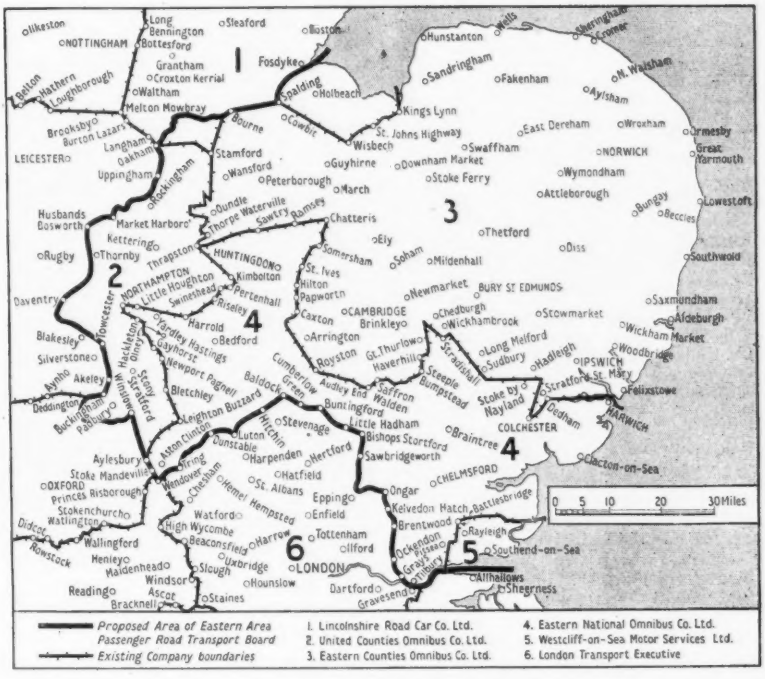
All these omnibus companies are in the Tilling Group, controlled by the B.T.C., and the Eastern National, Eastern Counties, and Lincolnshire companies have had railway co-ordination agreements for many years. Also, the Eastern National and Luton Corporation brought into force as recently as September 18 last a comprehensive co-ordination agreement for Luton & District Transport. The Norwich Omnibus Company is a statutory subsidiary of the Eastern Counties Company.

There are many other operators in the area, mostly of the type rendering intimate local service of a rural character, which does not seem to be particularly amenable to "grouping" into a large organisation. Where routes are served in common with the large operators, there are often inter-availability of tickets and jointly-arranged timetables, so that a considerable measure of co-ordination has been achieved. This East Anglian area does not seem to afford great opportunities for an area board to show any substantial improvement over the facilities already provided, but the control by the B.T.C. of all the large companies serving the district may make it an easier scheme to complete than one serving a territory with substantial and well-organised opposition.

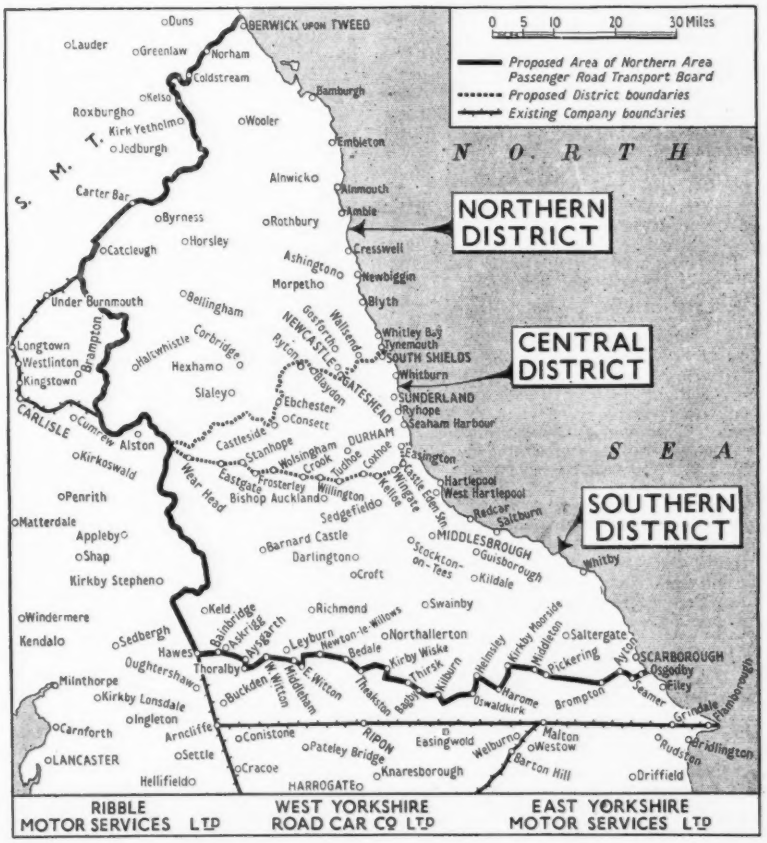
Northern Area Scheme

The Northern Area Scheme, of which details were published in our issue of September 9, has produced a well-organised opposition, headed by the Northern General Transport Co. Ltd. (one of the B.E.T. Group) and supported by a number of independent operators, and by the Omnibus Passengers Protection Association, which continues to enrol a large number of members. Local authorities and road passenger operators affected by this scheme had until the end of last month (October) in which to lodge any objections to the draft scheme.

We publish a revised map of the proposed area to be served by the Northern Area Passenger Road Transport Board, showing its relationship to the territories served by existing large neighbouring operators. The scheme provides for the transfer to Cumberland Motor Services Limited of the routes at present operated by the United Automobile Services Limited in the neighbourhood of Carlisle and Brampton. On the southern boundary of the area (which has been modified in some respects in the draft scheme from the original proposal), the services in a strip of territory at present served by the United Automobile Services Limited are to be transferred to the West Yorkshire Road Car Co. Ltd. Both the Cumberland and the West Yorkshire companies are controlled by the British Transport Commission.



Proposed Eastern Area and existing companies' zones



Revised Northern Area in relation to neighbouring companies

Irish Transport Bill

Second reading of the Bill to bring under public ownership the undertakings of Coras Iompair Eireann and the Grand Canal Company

In moving the second reading of the Transport Bill, 1949, the text of which was summarised in our issue of October 21, Mr. D. Morrissey, Minister for Industry & Commerce, said in the Dail on October 26 that, soon after taking office he was informed that C.I.E. had incurred a loss of £800,000 in 1947, and that there was an estimated loss of £1,250,000 for 1948, though the actual loss was £1,400,000. The company had proposed to remedy the position by dismissing 2,500 men, closing certain branch lines, increasing fares and freight charges, and placing restrictions on privately operated road transport. These proposals were so drastic that they could not be accepted by any Minister without full investigation.

The Milne Report

The report which Sir James Milne and his colleagues produced was severely critical of the policy of the board of C.I.E. and the control it exercised, particularly in the matter of capital expenditure, and the findings confirmed the doubts present in the minds of the Minister of Finance and himself as regards the wisdom or necessity for undertaking the projected capital developments. The opening words of the report were:—

"Capital expenditure amounting to £5,325,000 has been authorised between January 1, 1945, and August 31, 1948. In submitting capital schemes for the approval of the board, no formal reports are made, and no information appears to have been furnished in regard to the probable effect on net revenue or to show that schemes undertaken in the national interest were essential to an efficient and economical transport system."

In the literature relating to the affairs of this State and its public utilities, this paragraph would surely rank as a masterpiece of understatement.

With regard to the bus station at Store Street, the need for a central bus station in Dublin was unquestioned, but the central bus station at Store Street would occupy only the ground floor of the building. Above it had been erected five storeys of new offices for the staff of the company. The cost of the station might be anything from £100,000 to £150,000, but the cost of this new building now in progress, including the new offices for the company, was estimated at £850,000, and with furnishings, etc., the final cost might be nearer to the £1,000,000 mark. Expenditure to date was £320,000. The decision to provide these new offices involved the company in the expenditure of capital which, provided it were available, could be better spent on the provision of better carriages and wagons and in putting more buses on the streets.

Diesel-Electric Locomotives

Dealing with the recommendations to cancel the order for six large diesel-electric locomotives, Mr. Morrissey said he understood that the company was in negotiation with the suppliers of these engines for their sale, when completed, to some other transport undertaking. The expenditure incurred to date on this project was £192,000.

The report recommended the cancellation of an order placed for 94 boilers costing £280,000. This order had been cancelled and a claim for £25,000 compensation had been made on the company by the manufacturers.

The project for body-building shops at the Broadstone had reached the stage where tenders were received for the work. The company, on his instructions, and against their wishes, did not go on with it. They had, however, incurred an expenditure of £32,000.

The programme for the proposed chassis manufacturing factory at Inchicore envisaged the production of 10 chassis a week. This was the minimum economic production for a factory of that kind. The requirements for chassis for both omnibus and lorries was estimated to be four to five a week, of which two would be allocated to lorries. The company would be providing nearly three times as many lorries for its competitors as for itself. He accepted the statement in the report that the scheme could not be regarded as an essential adjunct to an efficient transport system. Nearly £300,000 had been expended on the project.

There was a further project of which Sir James Milne was not aware for the construction of a luxury hotel at Glengariff. It was estimated that the hotel when completed would cost approximately £1,000,000. The board decided before the Milne investigation to abandon the project, but not before an expenditure of £35,000 had been incurred.

The condemnation of this large programme of capital expenditure created the gravest doubts in the minds of the Government as to the feasibility of permitting the board as then constituted to continue to control the activities of the company, and consequently it was decided to change the Government representative on the board.

They all knew that the task of providing a national transport system under modern conditions had proved to be beyond the scope of private enterprise and also that the compromise between State ownership and private enterprise had not been successful. It was their duty to ensure that such an important service was carried on as effectively and as efficiently as possible. They had come to the conclusion that the discharge of that duty demanded State ownership of public transport.

Great Northern Railway (Ireland)

Mr. Morrissey stated that there were prospects of a satisfactory arrangement for the taking over of the G.N.R.(I.) on the basis suggested in the Milne Report. He had had a number of meetings with the directors of the G.N.R., who had explained their financial position very fully. It was not possible to give them the subsidy or the financial guarantee which they were seeking, but he undertook to do all in his power to expedite the discussions regarding the future of the company. Further legislation might be necessary.

The Chairman of C.I.E. had been nominated by the Government to carry on preliminary talks with the Chairman of the Ulster Transport Authority, and their discussions were proceeding. It was still too early to anticipate the outcome, but it was hoped that an agreed scheme would emerge for decision by the two Governments.

Dealing with the future prospects of the new company, Mr. Morrissey said that many ways would be found of achieving economies with a greater degree of technical standardisation and the introduction of more efficient methods. Duplicate services would be eliminated, and there were good prospects for the development of touring services. These measures could only mature slowly and would call for the greatest organising ability, managerial and technical skill. There was a good deal of loose talk about "cheap" transport and a tendency to ignore the fact that transport charges must depend to a great degree on the extent to which the services were supported and the cost of providing them.

Charging Powers

The Bill provided that the existing statutory controls on charging powers would not apply to the Board. It was the view of the Government that the most direct and business-like course would be to leave this complex matter in the hands of the members of the Board who, with the detailed knowledge that would be available to them and the technical advice that they could command, would be the best qualified to determine the level of charges from time to time. His belief was that a State-owned corporation of the kind proposed, charged with the duty of providing an essential public service, should be invested with the greatest possible degree of autonomy, commercial and financial, to enable it to carry on its business economically and without interference in its day-to-day management.

It would be the duty of the Board to fix its rates and charges equitably over the various classes of traffic, and it would have to direct its energies towards a solution of that most complex of all charging problems, the determination of the relationship between rail and road rates so as to attract towards each form of transport the maximum volume of traffic of the kind for which the form was best suited and equipped. In that way only could the full benefits of a policy of co-ordination be attained. The powers of the Board in regard to charges would be conditioned and governed by factors which, in his view, were a much more potent deterrent to excessive charging than any Ministerial controls such as had existed in the past.

The Bill provided that the Board might terminate train services on any section of line subject to certain conditions expressly laid down. The only departure from existing legislation now proposed was that the responsibility for an order for the closing of a branch line would lie with the Board instead of with the Minister for Industry & Commerce.

Claiming that the provisions in the Bill for the workers provided an unprecedented measure of security, Mr. Morrissey said that labour unrest and unofficial action constituted one of the greatest menaces to the success of the undertaking. Unofficial strikes struck at the very foundation of collective bargaining and put in jeopardy the rights which trade unionists enjoyed now, and he could not conceive any circumstance in which a lightning or unofficial strike in the new undertaking could be justified. The treatment of all concerned in the Bill was generous and they were getting the greatest measure of fair play they could ask the community to give.

Other recommendations in the Milne Report, such as the proposed establishment of a Central Highways Authority, revision of existing licensing arrangements for road vehicles, the problems of the Great Northern Railway and other cross-border services, would be dealt with by the new Board, which would make recommendations to the Government regarding further legislation which might be necessary.

Belfast & County Down Railway Inquiry

The Northern Ireland Transport Tribunal recently concluded its hearing of the application by the Ulster Transport Authority to close certain lines of the former Belfast & County Down Railway. Sir Anthony Babington, Chairman of the Tribunal, said that the issue was most important, and that the Tribunal would let the parties have its judgment in writing as early as possible.

In his closing speech for Down County Council, which opposes the application, Mr. F. A. L. Harrison, K.C., said that the long-term result of a closing order might not become fully apparent until a national emergency.

Sir Anthony Babington said that, apart from the fact that no one had appeared on behalf of the Government to put that point to the Tribunal, it had occurred to him to ask why, if the railway was to be kept open at a loss on national grounds, the loss should fall on the Transport Authority and, through it, on the travelling public.

Mr. Harrison said he did not see why the loss should so fall. To him the matter seemed one for the Government, and the Government by leaving it undecided placed all of them in a difficulty.

Mr. C. Stewart, for the National Union of Railwaymen, said that, as the closing of the line would be an independent act not caused by the amalgamaton of services in the Transport Authority, he did not see that the matter of compensation for redundant employees came under the Act. The redundant men would be "odd lots" on the labour market and would find themselves unemployed. That would mean a yearly cost of £26,000 in benefits from public funds. He submitted that the development of an alternative system of road transport would be, if anything, more expensive than the rehabilitation of the railway.

North Eastern Region Debating Societies

On October 18 the Federation of Railway Lecture & Debating Societies, North Eastern Region, held its first meeting of the session at York, when nearly 300 members heard an address by Mr. Alfred Barnes, Minister of Transport.

Mr. Miles Beevor, Chief Secretary & Legal Adviser to the British Transport Commission, presided, and others present included Mr. C. P. Hopkins, Chief Regional Officer, Mr. E. W. Arkle, Commercial Superintendent, Mr. A. P. Hunter, Divisional Operating Superintendent, and Mr. J. Taylor-Thompson, Civil Engineer.

Mr. Barnes, after tracing the history of the railways up to the passing of the Transport Act, 1947, gave a brief outline of the new organisation. He then referred to some of the tasks facing each section of the transport industry in its progress towards the eventual goal of a fully integrated transport system.

He referred particularly to the reduction in staff which had been effected since nationalisation and to the success of the methods adopted on the railways to deal with the pilferage problem. He also covered the scheme for road passenger services in the Northern area. He said he saw no reason to modify his view that a fully integrated transport system could and would be made to pay its way and concluded by asking all grades of railwaymen to continue their efforts to make nationalised transport a success.

Finally, Mr. Barnes answered a number of questions, after which Mr. L. W. Ibbotson, District Superintendent, Darlington, proposed a vote of thanks to the speaker and to the chairman.

The next meeting of the Federation will be held at Darlington on December 13 when the Railway Students Association, Edinburgh, will move "that greater delegation of powers to district officers would result in improved facilities to the public." Speakers from the Federation will oppose the motion.

Institution of Railway Signal Engineers

The annual dinner of the Institution of Railway Signal Engineers was held at the Abercorn Rooms, Liverpool Street, on October 28. The President, Mr. R. Dell (Signal Engineer, London Transport Executive), was in the chair, supported by Messrs. F. Horler and S. Williams, Vice-Presidents, A. F. Bound, C. Carslake, F. L. Castle and H. H. Dyer, Past-Presidents, W. H. Challis, Honorary Secretary, General Purposes Committee, W. Owen, Honorary Secretary, Organising Committee, several Members of Council, and the Honorary General Secretary, Mr. T. S. Lascelles. The guests were Lord Latham, Chairman of the London Transport Executive, and Lady Latham, and Mr. F. G. Maxwell, Operating Manager (Railways), London Transport, and Mrs. Maxwell.

Lord Latham, proposing the toast of the Institution, said he was happy to pay a tribute to its sterling contribution to safer and faster railway travel, although he would not dwell on what an expensive lot of fellows the signal engineers were.

The fine work done by the President, an officer of London Transport, was greatly esteemed by all associated with that organisation and generally acknowledged throughout the country, and abroad, and he expressed the congratulations of the Executive to Mr. Dell on his attaining the distinguished position of President: they all regarded it as a distinction to be shared by the whole of London Transport Executive.

They in London Transport, he continued, were fully aware of the importance of a modern signalling system. During 1948 more than 650 million passenger journeys had been made over their railways, the greater number during peak hours.

To handle that traffic they operated what he thought was acknowledged the finest close-interval service in the world, with a 90-second headway in the timetable. All central area lines were signalled for 40 trains an hour, but they could not always take advantage of that, as it allowed station stops of only 30 seconds. There again, the signal engineers had come to their aid, and speed control signalling, now being installed, was proving of the greatest assistance in reducing delays caused by prolonged stops at stations.

The Institution was doing excellent work in connection with education in signalling. The repetition of lectures outside London and their reproduction in booklet form made them invaluable to a wide circle.

In the field of signalling there was much to be done, Lord Latham concluded, and their search for perfection must be undertaken as part of the whole pattern of their national economy; costly works were not going to be possible in the present conditions of the nation's finances unless they demonstrated that they could confer important advantages and fully justified the expense.

Mr. Dell, in reply, thanked Lord Latham for his kind words. He said that a main requirement of present-day signalling was the provision of an adequate number of trained staff, and in that the Institution was trying to help by the lectures now being held in London and Manchester. The decision to print the lectures had been wise, but the cost of all that was a heavy strain on the Institution's financial resources.

Mr. F. Horler, Vice-President, proposed the toast of the visitors. He desired to thank the London Transport Executive, on behalf of the council of the Institution, for kindly allowing it to use the Signalling School at Earls Court. Mr. Maxwell responded in an amusing speech. Mr. S. Williams proposed the overseas members, who formed, he pointed out, about 30 per cent. of the total membership of the Institution, and Mr. A. Pickard, of the Great Indian Peninsula Railway, spoke in reply.

Main-Line Electric Locomotives for Brazil

(*Concluded from page* 532)

series-wound, force-ventilated, axle-hung nose-suspended type, driving through solid spur gearwheels and pinions. Lap wound armatures, with the shaft mounted on roller bearings, are fitted. Four brush arms are provided; Class B insulation is used throughout, and the motors are insulated for 3,000 volts to earth; an earth return carbon brush is also fitted to each machine bearing on the driving axles. Each motor is rated at 500 h.p. for one hour and 400 h.p. continuously in accordance with B.S.173—1941.

Auxiliary Equipment

The auxiliary machines comprise the following: two M.G. blower sets fitted, each with a generator having a continuous output of 20 kW. at 110 volts; overhung from each machine is a traction motor blower supplying three traction motors; the motor end is designed for operation at 3,000 volts d.c. These machines supply all the auxiliary loading, including the lighting. The low tension voltage of each set is regulated by a carbon pile regulator; the motor end of the M.G. set has a specially designed field system which ensures good commutating conditions, under starting, load and line voltage surges. The exhausters each have a displacement of 88 cu. ft. per min.

The regenerative exciter takes the form of a motor-generator set receiving its supply at 110 volts and having an output of 2 kW. The battery is of the alkaline type consisting of 72 cells, having a capacity of 40 A.h. at the five-hour rate of discharge. A 1-kW. breakfast-cooker is mounted in each cab.

The following are the leading particulars of the locomotives:—

Wheel arrangement	0-6 + 6-0 (Co + Co)
Locomotive weight	120 tons
Gauge	5 ft. 3 in.
Gear case to rail, clearance... ...	7½ in.
Minimum curve negotiable ...	525 ft. radius
Nominal d.c. supply	3,000 v.
Locomotive rating at 2,700 volts—	
Full-field 1-hr. rating	3,000 h.p. (34,300 lb. T.E. at 32·4 m.p.h.)
Full-field continuous rating ...	2,400 h.p. (26,600 lb. T.E. at 34·8 m.p.h.)

Staff & Labour Matters

Railway Shopmen's Wage Claim

At the meeting of the Railway Shopmen's National Council on October 26, when the employees' representatives presented their claim for a substantial pay increase for all grades, Mr. W. P. Allen, Member of the Railway Executive, speaking for the employers, said that the claim would receive the consideration of the Railway Executive and that a reply would be given as soon as possible.

Meanwhile, as resolved by the N.U.R. special delegate conference on September 29 and 30, the N.U.R. proposes to lodge a claim for an increase for low-paid employees and considers that no employee should be in receipt of less than a £5 standard weekly wage exclusive of the London allowance. This claim will be on behalf of N.U.R. members in the salaried and conciliation grades, and the N.U.R. has approached the two other railway unions, the R.C.A. and the A.S.L.E. & F., with a view to a joint submission to the Railway Executive.

The R.C.A. has accepted the N.U.R. invitation to discuss the new claim, although at the time of going to press no approach has yet been made to the Railway Executive. In accepting the invitation the R.C.A., it is understood, has stipulated that the form of the claim and the negotiations must not infringe existing agreements between the N.U.R. and the R.C.A. on wage rates for higher clerical and supervisory grades. As a preliminary to a meeting with the Railway Executive it is understood that there will be a meeting between the two unions to discuss the line of approach.

The third railway union, the A.S.L.E. & F., has not accepted the invitation of the N.U.R. The attitude of the A.S.L.E. & F. leaders may be that no useful purpose would be served in lodging a fresh claim with the Railway Executive in view of the fact that the Board of Conciliation last September reached the conclusion that there was no justification for a wage increase for railwaymen at the present time.

The N.U.R. is now in a difficult position. On the one hand, in conjunction with the Confederation of Shipbuilding & Engineering Unions, whose aim is a £1 a week rise for all its members, it is pressing for a substantial wage increase for railway shopmen. So far as the remainder of its members are concerned, it is proposing a wage increase confined to the lower-grade workers, which will demand for these men not less than £5 a week. In this application it is not supported by the A.S.L.E. & F. whose membership consists entirely of footplate staff.

The A.S.L.E. & F. has all along declared that its primary purpose is to establish a pensions scheme for all wage grades, and before the Board of Conciliation made it clear that it was not a party to the original N.U.R. claim for a flat-rate increase of 12s. 6d. a week which had been rejected by the Railway Staff National Tribunal in March, 1949; nor to the later claim for a flat-rate increase of 10s. a week. It was not to be assumed that A.S.L.E. & F. members were satisfied with their present rates. The pensions scheme, which they had already raised with the Railway Executive, was more important. The Conciliation Board in its report stated: "It was to be implied from the statements which the union representatives made, that in their view, in the present financial state in which the Railway Executive found itself a flat-rate increase of the order now claimed might, if granted, render consideration of a pension scheme impossible." The A.S.L.E. & F. no doubt still feels that its claim for a pensions scheme would be prejudiced if it were to lend support to any claim for a wage increase, whatever form it takes, at the present time.

General Policy on Wage Claims

The effect of devaluation on wages policy and other matters affecting industrial workers were discussed on October 27 at a meeting of the General Council of the T.U.C. and of the Ministry of Labour National Joint Advisory Council, on which representatives of the British Employers' Confederation, the T.U.C., and nationalised industries meet under the chairmanship of the Minister. A committee consisting of 16 leading employers and trade union leaders is to be set up. In effect, it will be a reconstituted Joint Consultative Committee comprising seven representatives of the British Employers' Confederation, seven representatives of the Trades Union Congress, and two members of the boards of nationalised industries. It will be asked to deal immediately with the five questions given below:—

1. Recruitment of labour, particularly for dollar exporting and dollar saving industries, and for dollar exporting and dollar saving firms.

2. Redistribution of labour becoming available as a result of the cut in the investment programme and the reduction in Government expenditure.

3. Control of labour. The council agreed that the Control of Engagement Order, 1947, should remain in force during 1950, which will also mean maintaining the power of direction which, during the past months, has been used only to prevent workers from leaving coal mining and agriculture.

4. Working added hours within the terms of existing arrangements or under such special arrangements as may seem desirable to the parties to these arrangements.

5. Extension of joint consultation.

The special economic committee of the T.U.C. is to continue its consideration of restraint in wage claims and the problem of sliding-scale agreements in the face of the recent rise in cost of living. In an official statement published last week the General Council of the T.U.C. stated:—

"The Prime Minister's economy proposals, announced on October 24, are not an insignificant contribution to a solution of the country's immediate difficulties. If vigorously applied, they will reduce during the next year inflationary pressure on prices and encourage the diversion of the country's resources to expansion of the export trades. The work of the special economic committee has been directed to consideration of the extent to which the T.U.C. might revise its wages policy."

The General Council of the T.U.C. is agreed that there is need for the utmost restraint in wage claims, and Mr. Tewson, General Secretary, has asserted that there was no justification for the assumption that the General Council was divided on the matter. It is understood that the National Joint Advisory Council of the Ministry of Labour was reminded at its meeting on October 26 of the Prime Minister's statement that the principles laid down in the White Paper on personal incomes, costs, and prices are now more important than ever, and was informed that the Government would discuss the practical issues involved with the T.U.C. and the British Employers' Confederation.

R.C.A. Annual Conference

At the R.C.A. annual conference at Blackpool on October 30, complaints were made that men who had opposed nationalisation in the past were holding leading positions in the transport industry. A resolution was carried that appointments to executive positions should be made from competent men who were convinced that nationalisation was beneficial. The resolution asked that appointments already made should be reviewed.

The passage of the resolution was in direct opposition to the advice of the R.C.A. Executive Committee; it was stated that the resolution meant that political opinions must be taken into account when appointments were made. A member of the Executive Committee said: "We should be the very last to suggest that a man's right to hold office should be determined by his political opinions. Let us not set our feet on the slippery slope of political discrimination. If we have criticism to make, let us make it on the ground of fitness and let the men keep their political opinions as their own."

In support of the resolution a delegate said: "The first necessity of a happy ship is an honest belief in the people at the top. The resolution refers only to a frame of mind. There are people now in control who, in the past, have spent thousands of pounds combating the nationalisation of transport."

The conference also passed a resolution criticising the alleged failure of the Railway Executive to collect in full all the revenue to which it was entitled. The Executive Committee was instructed to urge the Railway Executive to abandon all demurrage and other unfavourable agreements.

Double-Deck Electric Four-Coach Units

(*Concluded from page* 538)

the underframe. The stock is fitted with cast-iron brake blocks throughout, and all brake equipment is of the Westinghouse electro-pneumatic type.

The trial running tests which have been made with the vehicles show that they ride very steadily laterally, with almost a complete absence of oscillation at all speeds. Another feature of interest is the silent running of the cars.

The train was inspected at Charing Cross Station on November 1 by the Lord President of the Council, Mr. Herbert Morrison, and the Minister of Transport, Mr. Alfred Barnes, who were accompanied by Sir Cyril Hurcomb, Chairman of the British Transport Commission, and Sir Eustace Missenden, Chairman of the Railway Executive. Mr. Morrison, in a brief speech, congratulated the Railway Executive on its enterprise.

The following were among those who travelled in the special train:—

British Transport Commission: Messrs. John Benstead, Deputy Chairman, Lord Rusholme, Member, B.T.C., Messrs. Miles Beevor, Chief Secretary & Legal Adviser, J. H. Brebner, Chief Public Relations & Publicity Officer, R. H. Wilson, Comptroller, Dr. H. E. Merritt, Chief Research Officer; Mr. John Elliot, Chief Regional Officer, and Mr. O. V. Bulleid, formerly Chief Mechanical Engineer, Southern Region (now Consulting Mechanical Engineer, Coras Iompair Eireann.

Questions in Parliament

Travel Concessions for Railwaymen

Mr. Norman Bower (Harrow, West—C.) on October 18 asked the Chancellor of the Exchequer if he could give any estimate of the amount of tax lost to the revenue in a year through the free distribution of coal to miners by the National Coal Board and the provision of free travel facilities for railway employees by British Railways.

Sir Stafford Cripps (Chancellor of the Exchequer): I regret that I cannot say what tax would be paid if benefits in kind like those referred to were made liable to tax.

Lineside Fires

Lt.-Colonel Geoffrey Clifton-Brown (Bury St. Edmunds—C.) on October 24 asked the Minister of Transport what had been the extent of damage by fire to agricultural crops this summer caused by railway engines; and to what extent it was estimated to be due to the discontinuance of preventative attachments being fitted to the engines.

Mr. Alfred Barnes: The total number of lineside fires affecting agricultural land, alleged to have been caused by railway engines this year so far, is roughly 4,000. It is not established, however, that spark ignition was the cause in all such cases. I am unable at the moment to state the extent of the damage caused to agricultural crops, but I am making inquiries and will communicate with Colonel Clifton-Brown. There has been no discontinuance of preventative attachments to engines.

"A" and "B" Licence Holders' Compensation

Mr. S. Prescott (Darwen—C.) on November 1 asked the Minister of Transport what, up to the most recent convenient date, was the total sum paid by way of compensation to "A" and "B" licence holders; what sum remained outstanding; and by what date it was hoped to complete payment.

Mr. Alfred Barnes stated in a written answer: The British Transport Commission has informed me that the position at October 1, 1949, was that the provisional ascertainments made of compensation payable to "A" and "B" licence holders amounted to £8,115,000. There were also, at that date, some road haulage undertakings which had been acquired, for which it had been impossible to make provisional ascertainments. In making payment of the £8,115,000, one-tenth has been or will be retained pending final ascertainment of the total net amount payable in each case. This leaves a net total of £7,303,500, of which £4,790,000 had been paid up to October 1 inclusive. It is expected that a further payment of about £1 million will be made on the next date for the monthly issue of Transport Stock, which will be in the near future. The balance of £1½ million will be paid as soon as all the legal and other formalities connected with the transfer of assets have been completed. In the meantime, since the Commission has no power to make cash advances except an amount of £2,000 to each transferor with a probable claim of £20,000 or less, it has made special arrangements for bank loans on favourable terms to be available in approved cases to those transferors in immediate need of funds. It will not be possible to give an estimate of the total amount of compensation which will become payable in respect of the whole operation of acquiring long-distance road haulage undertakings until the extent of the assets yet to be taken over has been agreed or determined. The date by which the completion of all payments may be expected will depend largely on factors outside the control of the Commission, such as the speed with which the necessary information is furnished by transferors and the number of the cases to be dealt with by the Transport Arbitration Tribunal.

Compensation for Railway Staff

Mr. R. De la Bere (Evesham—C.) on October 24 asked the Minister of Transport when the regulations under section 101 (1) of the Transport Act, 1947, requiring the Commission to pay compensation to officers in certain cases, where they suffered loss of employment or loss or diminution of emoluments or pension rights or where their position was worsened, would be laid before the House; what were the reasons for the delay; and what compensation was being paid to officers or servants who suffered loss in the meantime.

Mr. Alfred Barnes: Regulations under this section providing compensation for officers and servants of the railways, the canals, and the Railway Clearing House have already been made. The further regulations required to be made under the section are in preparation and will be laid before the House as soon as possible. These regulations deal with sections of the transport industry which have no precedents of compensation such as existed for the railways, and their preparation has, therefore, taken longer. As regards the last part of the question, the British Transport Commission has no power to pay compensation until regulations have been made.

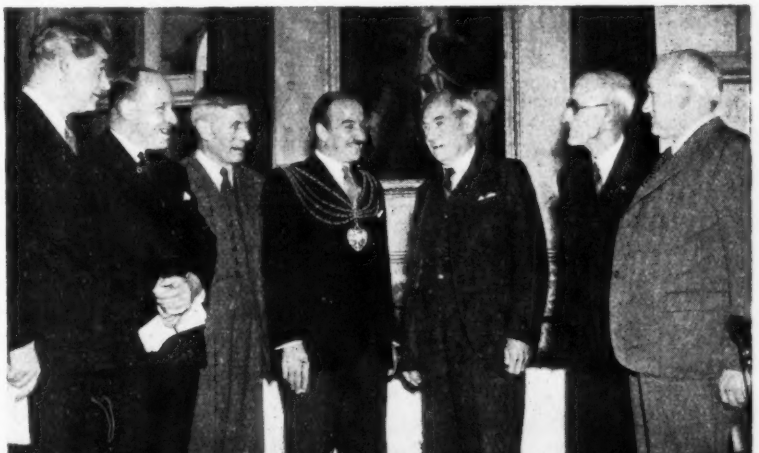
Mr. De la Bere: Is the Minister aware that many of these splendid officers of the road transport undertakings are in very grave doubt and anxiety as to where they stand? Is it not vitally necessary that they should have the facts made clear to them at the earliest date, and that, if they have been occasioned any loss, it should be made good to them?

Mr. Barnes: I am certainly aware of the situation, but Mr. De la Bere will appreciate that, in drafting regulations covering these sections of the industry, which I emphasised have no precedents, it is desirable to consult all the interests affected, and the proposals are now under consideration and are awaiting their views.

COAL BOARD PROFIT.—A gross profit of £6,676,883 or 2s. 7d. a ton was made by the Coal Board in the second quarter of this year. The surplus, after providing for interest and compensation to former coal owners, taxation, etc., amounted to £2,491,883. This brings the total surplus for the first six months of the year to £6,324,530. In 1947, the first year of nationalisation, the Board reported a £23,255,586 deficit, whereas last year the surplus was £1,651,965.

TRANSPORT SECURITIES.—The Share & Loan Department of the Stock Exchange has been advised that all the accounts of British Transport Stock on the registers kept by: Forth Bridge Railway; Great Central & Midland Joint Committee; Midland & Great Northern Railways Joint Committee; Oldham, Ashton-under-Lyne & Guide Bridge Junction Railway; representing stock arising from the conversion of the former securities, have been passed to the Bank of England. All correspondence in respect of these accounts should be addressed to the Bank of England, 18, Finsbury Circus, London, E.C.2.

Visit to West of England by Sir Cyril Hurcomb



Group at the Grand Hotel, Plymouth, on October 25, during the visit to the West of England by Sir Cyril Hurcomb, Chairman, B.T.C., referred to in our October 28 issue

Left to right: Messrs. J. H. Brebner, Chief Public Relations & Publicity Officer, B.T.C.; K. W. C. Grand, Chief Regional Officer, British Railways Western Region; V. M. Barrington-Ward, Member, Railway Executive; Councillor H. L. Trebilcock, Deputy Lord Mayor of Plymouth; Sir Cyril Hurcomb; Messrs. H. S. Stowell, Chairman, Plymouth Mercantile Association; C. R. J. Roberts, Chairman, Plymouth Chamber of Commerce

Notes and News

Institution of Civil Engineers.—A joint meeting of the Institution of Civil Engineers and the Société des Ingénieurs Civils de France, British Section, will be held at the Institution of Civil Engineers, Great George Street, S.W.1, on November 17, at 5.30 p.m. Mr. W. Hawthorne will be in the Chair and Mr. E. Freyssinet will read a paper on "Pre-Stressed Concrete; Principles & Applications."

Revision of Eastern Region Suburban Passenger Services.—Commencing November 7 the local services between Liverpool Street and Shenfield will be augmented and operated with electric trains in accelerated timings. The trains at present running between Fenchurch Street and Stratford and stations beyond will be withdrawn and Bow Road Station will be closed. Passengers travelling between Fenchurch Street, Tilbury, and Southend will not be affected by these alterations.

Southern Region Television Film.—Through the co-operation of the British Broadcasting Corporation, a copy of the film "Go Slow to Brighton," which was featured recently on the television programme and depicts a journey from London to Brighton in four minutes, has been obtained by the library of the Southern Region, British Railways. The film portrays a motorman's view of the entire route from Victoria as it would appear at an average speed of nearly 800 m.p.h.

Coles Searcher Jib Cranes.—Steels Engineering Products Limited give details of the Coles Searcher Jib, a full-circle slewing crane. It can search out remote corners and pick up or put down loads in awkward places. It can reach under a door height of 6 ft. 8 in. from ground level, and lift one ton up to a height of 14 ft., or half a ton at a 12 ft. radius from the centre post. Hoisting is in the usual way, but in addition loads can be lifted under limited headroom conditions, with a fixed hook at the jib head. Thus, packages almost as large as the door opening can be accurately placed in position, or picked up from remote corners and brought out through the doorway. For specialised traffic, any type of fork or hook can be attached to the jib head, when the derrick lift of the crane gives all the advantages of a fork truck, combined with a much greater reach and ability to stack to a much greater height. Some of this type of crane are used in goods yards by the Great Northern Railway (Ireland).

Sailing Tickets to Ireland at Christmas.—The London Midland Region, British Railways, announces that sailing tickets, issued free of charge, will be required for passenger travel to Ireland by all sailings on the Holyhead-Dun Laoghaire (Kingstown) route between December 21 and 24 inclusive. Sailing tickets will not be required by any other route to Ireland, nor by any route from Ireland.

Collision near Lincoln.—After the locomotive of a fast goods train from Kings Cross to Doncaster had run into the rear of a slow-moving goods train from Peterborough to Doncaster at Lincoln, Eastern Region, early on October 25, it fell down a 30-ft. embankment and carried with it the brake-van of the slow train, in which a spare crew were travelling. The brake-van caught fire from blazing coals from the stove used to heat it. The driver and fireman of the London train, the guard of the slow train, and a member of the spare crew were slightly injured.

Railway Benevolent Institution Annual Report.—It is recorded in the report of the Railway Benevolent Institution for the year ended April 30, 1949, that 7,173 persons were assisted during the year, at a cost of £58,036, made up of £47,669 from the general fund, £3,705 from the special benevolent fund, and £6,662 from the casualty fund. Excluding the Derby Orphanage, income amounted to £77,401, compared with £83,786 for the previous year; there was a rise in donations due to an increase in the sum received through the country-wide flag-day collection organised by the Railway Executive, but there were decreases under the headings of subscriptions, legacies and interest (the last-named, it is stated, being almost entirely due to the exchange of railway investments into 3 per cent. British Transport Stock). Gratitude is expressed in the report to the President of the Institution, Sir Cyril Hurcomb (Chairman of the British Transport Commission), for his keen interest in the Institution's affairs, and for the valuable collection made under his auspices in aid of the funds, and to the Railway Executive, the Chief Regional Officers and their respective staffs for their assistance in the same connection; as a result of the combined efforts £12,313 was received.

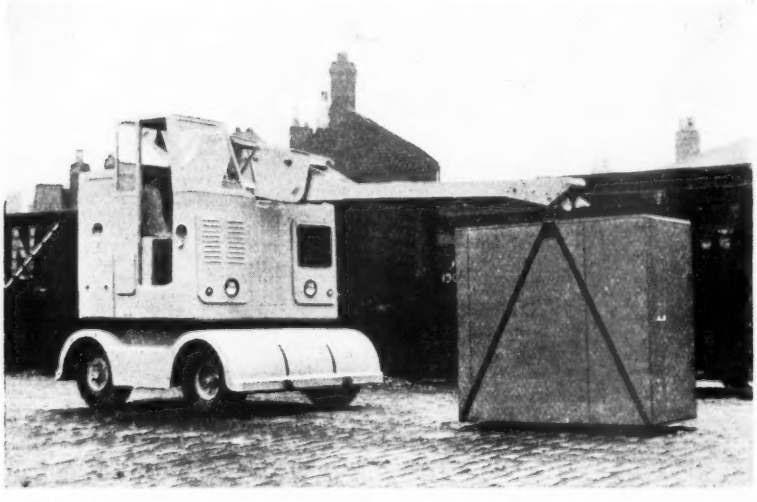
Diesel Engine Users Association.—Mr. P. T. Holligan will read a paper on "Plain Bearings—Material Design and Operation" before the Diesel Engine Users Association on Thursday, November 17. The meeting will be held at Caxton Hall, Westminster, London, S.W.1, at 2.30 p.m.

Public Transport Association.—The Public Transport Association annual luncheon will be held at the Savoy Hotel, London, W.C.2, on Thursday, November 17. Mr. Alfred Barnes, Minister of Transport, will be the principal guest of the Association and a representative attendance of road passenger transport personalities throughout the country is expected at the gathering.

French Railcar Accident.—On October 25 the 4.40 a.m. train from Cerbère to Avignon, consisting of a railcar and three coaches, left the rails at Barbentane, near Avignon, due to a broken axle, at about 50 m.p.h. and ploughed into a concrete wall. Twelve persons were killed and 46 injured. The driver, who was one of the dead, had suspected trouble from Tarascon onwards and had stopped at Gravesen-Maillane, the station before Barbentane, but examination had revealed no apparent fault.

Speeding-up Anglo-Scottish Express Trains.—It is announced by the Railway Executive that, as a result of the consolidation of the track between Berwick-on-Tweed and Dunbar, which was seriously damaged by floods in August, 1948, and the faster running now permitted over this section of the line, 26 weekday trains and 16 Sunday trains on the Anglo-Scottish coast route are to be accelerated by up to 12 minutes as from November 7. Almost all the north-bound expresses from Kings Cross to Scotland will be due at their destinations earlier than at present. Most of the south-bound trains, though leaving their departure points later, will maintain their present advertised arrival times.

Lawsuit Against ex-British-Owned Uruguayan Railways.—The Joint Liquidators of the Central Uruguay Railway Company of Monte Video Limited, the Midland Uruguay Railway Co. Ltd., the Midland Uruguay Extension Railway Co. Ltd., the Uruguay Northern Railway Co. Ltd., the North Western of Uruguay Railway Co. Ltd., and the Quarahim International Bridge Co. Ltd. regret to announce that an action has been instituted against them in the Uruguayan Law Courts by certain ex-employees of the companies claiming compensation under Uruguayan Law for alleged technical dismissal on the sale of the railways to the Uruguayan Government, and also payments in respect of ultimate repatriation expenses to the United Kingdom. The legal principle involved might, however, also have wider implications, and the maximum liability in that event could be very substantial and cannot at present be estimated. Moreover, the sterling liability would be dependent on future exchange fluctuations which cannot at present be foreseen. The Liquidators are advised by their lawyers in Uruguay



Coles Searcher Jib crane with jib cranked upwards to handle load from ground level (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

THE EVOLUTION OF RAILWAYS. Second edition, revised and enlarged. By Charles E. Lee. Traces the germ of railways back to Babylonian times. Cloth. 8½ in. by 5½ in. 72 pp. Illustrated. 6s. By post 6s. 4d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

STANDARD MILITARY RAILWAY BRIDGES. By F. S. Bond. A description of the different types of bridges designed for rapid erection in the field by the Allied Forces, and of the various methods employed in such erection. 28 pages. 9 in. by 12 in. fully illustrated. Paper cover, 5s. By post 5s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Rhodesia Railways

APPLICATIONS are invited for an Assistant Electrical Engineer for the Electrical Section of the Mechanical Department for duties in electrical distribution, workshops plant, building installations and railway train lighting. Applicants must have served a recognised pupilage or apprenticeship and subsequently had experience as an Electrical Engineer. The minimum qualification is the standard required for admission by examination as Associate Member of the Institution of Electrical Engineers or accepted equivalent. Age about 28 to 35 years. Salary scale £640 rising by annual increments of £30 to £1,000 per annum plus variable cost-of-living allowance now applicable at 22 per cent. on basic salary. The commencing salary may be higher than the minimum, dependent on age, qualifications and experience. Applications, together with full particulars of training, subsequent experience, education and technical qualifications, etc., to be forwarded to THE CHIEF MECHANICAL ENGINEER, RHODESIA RAILWAYS, P.O. BOX 703, Bulawayo, Southern Rhodesia.

RUSTON-HORNSBY DIESEL LOCOMOTIVES

RADIATOR cooled; 3 speed gearbox and reverse. One 27-h.p. Ruston 3-cyl. vertical, 2 ft. 4½ in. gauge. One 27-h.p. Lister 3-cyl. vertical, 2 ft. 4½ in. gauge. Two 20-h.p. Listard 2-cyl. vertical, 2 ft. gauge. One 16-h.p. Lister 2 cyl. vertical, 2 ft. 4½ in. gauge. Three 10-h.p. Listard 2-cyl. vertical, 2 ft. gauge.—COX & DANKS LIMITED, Langley Green, Oldbury, Birmingham—Broadwell 2011. Scapa Works, Neath, Glamorgan—Neath 2205.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

SECTIONED PERSPECTIVE VIEW OF LOCOMOTIVE FRONT END. A notable drawing of L.M.S.R. class "7P" 4-6-2 locomotive of the latest type. Reprinted from *The Railway Gazette*, June 15, 1945. Price 2s. 6d. Post free 2s. 8d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

that these claims are ill-founded and unlikely to succeed, but, until their validity or otherwise has been adjudicated upon in the Uruguayan Courts, or the extent of any possible liability can be more accurately ascertained, the Liquidators must defer making any payment on account to the preference and ordinary stockholders. A further announcement will be made as soon as circumstances permit. All other liabilities have been, or are in course of being, disposed of, and subject to the satisfactory solution of this action it would appear that the funds ultimately available for distribution will be sufficient to meet the amounts payable to stockholders estimated in the scheme of arrangement.

West Wemyss Station to Close.—The Railway Executive, Scottish Region, announces that, as from November 5, 1949, West Wemyss Station will be closed to passenger and freight train traffic. Passengers for West Wemyss from stations on the Methil branch will be booked to Wemyss Castle, and from other stations to Kirkcaldy, from which point a bus service is available. A collection and delivery service will be given in West Wemyss by road motor based on Methil in respect of passenger train parcels and miscellaneous traffic and traffic by freight train.

Liquid Soap and Paper Towels for Express Trains.—As part of its campaign to improve passenger travel the Railway Executive is arranging to provide, experimentally, liquid soap and paper towels in the toilet compartments of twelve main-line expresses. If the experiment is satisfactory and supplies are readily available it is hoped eventually to extend these facilities to all long-distance trains. Soap and towels are already provided in first class sleeping cars and this facility is now being extended to all third class sleeping cars.

Southern Region Continental Boat Services.—With the ending of summertime on October 30, boat trains began leaving Victoria one hour earlier, with the exception of the Newhaven-Dieppe service, which departs at 9.5 a.m. instead of 9.35 a.m. Inwards, arrival times in London are also one hour earlier, except the night ferry *via* Dunkirk and Dover, which still arrives at 9.10 a.m. The Southampton-Havre service from and to Waterloo remains the same. For motorists, the Southern Region is operating special motorcar-carrying services this winter on the Dover-Boulogne, Dover-Dunkirk, and Newhaven-Dieppe routes. The *Autocarrier* will work the Boulogne route until November 13, and from February 26 to March 31, and the *Dinard* from November 14 to February 25, with the exception of Christmas Day. This service leaves Dover daily at 11.0 a.m., and returns from Boulogne at 5.0 p.m., the Channel crossing taking 1 hr. 50 min. Day and night ferry services *via* Dover-Dunkirk operate daily, Sundays included, in each direction, leaving Dover at 11.20 a.m. and 11.40 p.m., and returning from Dunkirk at 1.50 p.m. and 2.15 a.m. The crossing time is 3 hr. 50 min. The Newhaven-Dieppe service is being worked by the *Nantes* and *Rennes* and runs three times weekly, *e.g.*, outwards Tuesdays, Thursdays, and Saturdays, and inwards Mondays, Wednesdays, and Fridays. Sailing times are 9.30 a.m. from Newhaven, and 10.30 a.m. from Dieppe, the crossing taking about 5 hr. Petrol tanks of vehicles shipped by these services need not be emptied.

India to Make Machine Tools.—An agreement has been signed between the Government of India and the Oerlikon Machine Tool Company, Zurich, Switzerland, for setting up a machine tool factory at Bangalore, South India. The authorised capital of the undertaking will be 12 crores of rupees (about £9 million), of which Oerlikon will take up 10 per cent., on which the Government has guaranteed 5 per cent. interest during the first five years provided that "until incorporation the Oerlikon Company shall pay the cost of such plant and machinery as be ordered for the factory from the U.S.A. or Switzerland up to the sum of 1.2 crores." It is further agreed that, in consideration of the transfer of the licence necessary for the factory, the Government shall assign to Oerlikon, free of payment, 5 per cent. of the share capital.

Congress to Celebrate Centenary of Reinforced Concrete.—In commemoration of the invention of reinforced concrete about a hundred years ago, when the Frenchmen, Lambot, Monier and Coignet, were the first to integrate iron and concrete in one structure, French engineering and architectural institutes have combined to mark the occasion with a special congress, to be held in Paris on November 8, 9 and 10. Final invitations have been sent out by the French Association of Constructors in Reinforced Concrete. The congress will be held under the patronage of the Ministers for Public Works & Transport, Industry & Commerce and Reconstruction & Town Planning, and will be honoured by the presence of the President of the Republic, Monsieur Vincent Auriol, at the opening session. The technical programme includes lectures by distinguished French engineers and architects of international reputation, including Messrs. Boutet, Caquot, Freyssinet, Lossier and A. Perret. There will also be organised visits to buildings and building sites in the Greater Paris area, and a special exhibition on reinforced concrete will be opened at the Museum of Public Works. The French National Railways offer a fares reduction of 20 per cent. for the journey to and from Paris of those taking part in the congress, and their families. The reduction applies until November 15.

Increased Buffet-Car Facilities.—As from Monday, November 7, the North Eastern Region of British Railways will run buffet cars on seven more trains serving York, Newcastle, Scarborough, Leeds, and Hull. The trains are: 11.27 a.m. York to Newcastle; 4 p.m. Newcastle to York; 8.5 a.m. Scarborough to Leeds City; 11.50 a.m. Leeds City to Hull; 3 p.m. Hull to York; 4.10 p.m. York to Leeds City; 5.30 p.m. Leeds City to Scarborough.

Railway Benevolent Institution.—At its meeting on October 19 the board of the Railway Benevolent Institution granted annuities to eight widows and 10 members amounting to £296 per annum, two funeral gratuities on account of deceased annuitants amounting to £20, and one gratuity of £5 to a widow; and authorised 56 grants amounting to £531 9s. from the special benevolent fund in cases of immediate necessity. Grants made from the casualty fund during September amounted to £649 18s. 6d.

Scottish Motor Show Exhibits.—One of the exhibitors at the Scottish Motor Show, which will be held at the Kelvin Hall, Glasgow, from November 11-19, will be Transport Equipment (Thornycroft) Limited, Smith Square, London, S.W.1. Among the exhibits displayed by this firm will be one of the "Sturdy Star" direct-injection oil-engine chassis which are available in three lengths of wheelbase. This is the successor to the "Sturdy" chassis already supplied in considerable numbers to British Railways and other transport operators. There will also be on view a passenger vehicle incorporating the "Nippy" chassis.

"Steel and Britain's Future."—At a luncheon at the Savoy Hotel, London, on November 2, to mark the issue of a book—"Steel and Britain's Future"—published by the *Iron & Coal Trades Review*, Sir Robert Sinclair, President of the Federation of British Industries, said that as a nation we are facing two over-riding problems—how to increase our exports, particularly to dollar countries, and how to increase our productivity. They were

not wholly separate problems, for the first largely depended on the second, but in the solution of both problems the technical Press had an important role to play. The new publication provided an illuminating commentary on a well-organised and progressive industry. He congratulated the industry on the wholly admirable record of good relationships which exist throughout, and added that no reasonable person could fail to discern in these facts complete justification for private enterprise.

Forthcoming Meetings

November 4 (*Fri.*).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.30 p.m. "The Development of the Modern French Steam Locomotive," by Mr. R. C. Menzies.

November 7 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Annual general meeting and paper: "International Inland Transport," by Brigadier A. E. Walter.

November 8 (*Tue.*).—Retired Railway Officers' Society autumn luncheon, at the Criterion Restaurant, Piccadilly Circus, London, at 12.30 for 1 p.m.

November 9 (*Wed.*).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, London Bridge, at 5.45 p.m. "Locomotive Exchanges," by Mr. J. P. Maitland, Running Shed Superintendent, Nine Elms.

November 9 (*Wed.*).—Railway Students' Association, London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6 p.m. "Philosophy and the Human Element in relation to Railway Work," by Mr. J. C. L. Train, Member, Railway Executive.

November 9 (*Wed.*).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 6 p.m. Informal discussion on: "Signal Arm Proving and the Relative Merits of Power Frames and Panels," introduced by Messrs. F. W. Young and C. F. Venning.

November 10 (*Thu.*).—Institute of Transport, Southern Section, at the Harbour Board Offices, Southampton, at 5 for 5.45 p.m. "Suburban Railway Operation, with some reference to the London Working Party Plan," by Mr. C. F. Klapper, Assistant Editor, *Modern Transport*.

November 10 (*Thu.*).—Scottish Engineering Students' Association, at the Institution of Engineers & Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow, at 7.30 p.m. "Some Engineering Impressions in North America," by Mr. H. Sutherland.

November 10 (*Thu.*).—Irish Railway Record Society. "Railway Experiences in the late war," by Mr. R. Charlesworth.

November 11 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. "The Engineering Implications and Economics of Surface Preparation of Mild Steel Prior to Fabrication," by Mr. W. A. Johnson.

November 11 (*Fri.*).—Institution of Railway Signal Engineers, in the London Transport Executive Signal School, Earls Court Station, at 6.15 p.m. "Principles of Interlocking," by Mr. W. H. Such.

Railway Stock Market

Markets have not recovered from the heavy fall in British Funds last week which dominated sentiment in all sections. Nevertheless, the selling wave now seems to have spent itself, and the larger yields on gilt-edged stocks seem to be the cause of moderate buying. British Funds have been an uncertain market ever since devaluation; but until a week ago they had suffered a smaller decline than had been expected by many who thought that devaluation might lead to an increase in the Bank rate. Sir Stafford Cripps has already made it clear that he does not intend to raise short-term money rates. Nevertheless, those who feel that the measures are inadequate are assuming that another crisis may develop in a few months, and that so as to keep inflation in check it might be necessary to make money dearer by raising the Bank rate.

This may prove to be an exaggeration; further, it can be argued that as far as British Funds are concerned, the possibility of a higher Bank rate next year is already discounted to a large extent by the current level of prices. The fall in prices had brought 2½ per cent. Treasury Bonds, which were issued at par at the height of the cheap money campaign, to the record low level of 66¼, while Transport and other nationalisation stocks are also at new low levels, and 3½ per cent. War Loan has touched its lowest price since 1939.

Rather more business was reported in foreign rails. Leopoldina stocks responding to the message proposing ratification of the purchase agreement. Leopoldina ordinary improved to 9¼, and the preference stock to 27½, while the 4 per cent. debentures were good at 89½, and the 6½ per cent. debentures 130. Leopoldina Terminal 5 per cent. debentures were 104 and the ordinary units 2s. 9d. Great Western of Brazil shares have been firmer at 136s. 3d. Brazil Railway gold bonds were better at 43 awaiting confirmation of certain hopes that pending developments may enable the pay-out to be made early next year.

United of Havana stocks remained firm and more active with the 1906 debentures higher at 29. San Paulo 10s. units at 13s. 7½d. became steadier after their recent decline. Central Uruguay ordinary eased to 10½ for fear that developments in Uruguay may further delay repayment of the stocks. International of Central America stocks were not affected by news that the floods may affect the company financially; quotations however were not adequately tested. The no-par value stock changed hands at 9½d. Taltal shares marked 15s. 6d., and Nitrate Rails were 73s. 9d. Manila "A" debentures and preference shares were 86 and 7s. 4½d. respectively. Mexican issues have been more active, Mexican Railway 6 per cent. debentures being 42½ and Northern Railway of Mexico 4½ per cent. bonds 17½. Elsewhere, Antofagasta preference stock was steady at 40 with the ordinary at 7½.

Reflecting the uptrend in dollar stocks Canadian Pacifics changed hands up to 26; the preference stock was steady at 62½ with the 4 per cent. debentures at 95½. Among road transport and kindred securities there has been a jump of £90 to £1,540 in B.E.T. deferred stock on the 200 per cent. scrip bonus, which was unexpected in the market and received permission from the Capital Issues Committee just prior to the reimposition of the ban on scrip bonuses. The shares of bus and kindred companies were generally well maintained with Southdown at 123s. 9d. and West Riding at 70s. The City is not expecting any fresh moves by British Transport to take over further road transport undertakings during the next few months.

Iron and steel shares were generally easier, with United Steel at 24s. 9d., Hadfields at 24s. 9d., Stewarts and Lloyds at 52s. 3d., Dorman Long at 27s. 9d., and Colvilles at 31s. 6d. Although it is clear that the Government means to nationalise steel as soon as possible, the earliest vesting date is May 1, 1950, and it must be borne in mind that a General Election may determine whether nationalisation is put into effect.

The shares of locomotive builders and engineers showed steadiness with North British Locomotive at 19s. 3d. and Beyer Peacock at 19s., but Vulcan Foundry receded to 18s. 6d. Gloucester Wagon, however, rose from 51s. to 52s. 6d., and Wagon Repairs 5s. shares were firm at 17s. T. W. Ward have been steady at 55s. 3d.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1947/48	No. of weeks	Aggregate traffics to date: Total 1948/49	Aggregate traffics to date: Increase or decrease
				£			£	£
South & Central America	Antofagasta... ...	811	23.10.49	83,810	+ 10,710	42	2,801,670	+ 468,920
	Costa Rica	281	Sept., 1949	30,929	— 3,154	13	102,621	— 8,998
	Dorada	70	Sept., 1949	29,403	+ 1,529	39	265,030	+ 24,545
	Inter. Ctl. Amer. ...	794	Aug., 1949	$1,023,467	+ $26,568	35	$8,601,268	— $568,351
	La Guaira	22¼	Sept., 1949	$108,255	+ $6,733	39	$967,478	+ $28,622
	Nitrate	382	15.10.49	18,687	+ 5,016	41	359,026	+ 113,432
	Paraguay Cent. ...	274	21.10.49	₲164,778	+ ₲64,775	16	₲2,309,275	+ ₲673,548
	Peru Corp. ...	1,059	Aug., 1949	246,670	+ 74,521	9	473,214	+ 122,033
	Salvador	100	June, 1949	c142,000	+ c21,000	52	c2,026,000	+ c5,400
	Taltal	154	Sept., 1949	9,205	+ 950	13	29,200	+ 5,440
	United of Havana ...	1,301	11.6.49	$231,311	+ $14,746	49	$13,733,928	— $4,659,951
Canada	Canadian National †	23,473	Sept., 1949	14,914,000	+ 299,666	39	121,848,000	+ 3,665,333
	Canadian Pacific †...	17,037	Sept., 1949	10,784,666	— 548,333	39	89,239,000	+ 4,043,333
Various	Barsi Light* ...	167	Sept., 1949	23,640	+ 3,285	25	179,107	+ 24,015
	Egyptian Delta ...	607	30.9.49	18,220	— 991	26	326,967	— 1,764
	Gold Coast ...	536	Sept., 1949	205,654	+ 39,977	27	1,398,009	+ 213,885
	Mid. of W.Australia	277	Aug., 1949	28,838	+ 168	9	49,700	— 2,957
	Nigeria	1,900	July, 1949	489,380	— 15,057	16	1,771,747	— 24,882
	South Africa ...	13,347	8.10.49	1,501,655	+ 153,789	27	40,436,751	+ 4,158,365
	Victoria	4,744	June, 1949	1,388,395	+ 21,633	52	—	—

* Receipts are calculated @ 1s. 6d. to the rupee † Calculated at $3 to £1